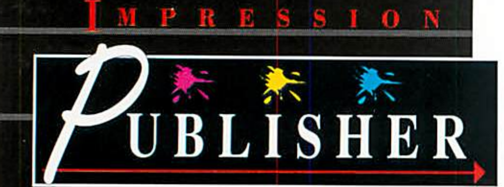

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The magazine for all users of 32-bit Risc OS computers
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Desk Top Publishing



Impression Publisher is the first full colour,

Impression Publisher is the most powerful version of Impression to be released so far. Like all versions of Impression, it is designed to be a complete document handling solution in one simple to use program.

Word processing and general features

Full word processing including advanced features such as:

- Integrated spell checker with check as you type and auto-correct and abbreviation expansion as you type
- Integrated WordWorks Collins English dictionary (with explanations) and Collins Thesaurus



- Automatic paragraph numbering and re-numbering
- Very powerful system of overlaying styles and effects
- Tool bars for quick and easy access to common functions, text effects and styles
- Keep together and keep with next, for advanced text flow control
- OLE - allows simple embedding and editing of other file types
- Package includes Equasor and TableMate OLE utilities, for simple and easy mathematical equation or table creation and editing
- Drag and drop text editing

Graphics

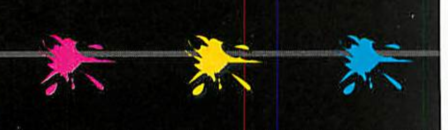
Publisher provides the most powerful set of graphics tools available:

- Instant graphics pan, scale and rotate using the mouse
- On screen anti-aliasing of ArtWorks files and draw files
- Separate contrast and brightness control for each individual graphic
- Turn greyscale or other graphics into duotone (any two colours) graphics
- Colour balance control for each graphic
- Full 16 and 24-bit sprite support
- TIFF files supported and optional loaders for JPEG and PhotoCD files
- Accepts pre-separated CMYK sprites and TIFF files
- Advanced PostScript screen control of each graphic
- Individual information on each graphic - size in bytes, file types, number of colours, resolution of sprites etc.

Page layout and DTP

- 4 colour separations with on-screen preview of separations
- Separates all graphics and sprites including 16 and 24-bit RGB sprites
- Named master pages now with page bleed control
- Full control of PostScript separations - screen angle, type, density, crop and registrations marks etc
- Supports multiple device profiles for separating to different printers
- Guide frames and page grid with snap-to function for frames and text
- Irregular graphics frames with text flow around

Publisher can be your everyday word processor, it is also excellent at handling long documents, even books. It's ideal for simple brochures or adverts and the most complex page layout tasks.



on Acorn RISC computers

24-bit capable publishing solution for Acorn RISC computers.

Irregular frame with text flowing around

Button bar

Black & white scanned image turned into duotone (any two colours) graphic

Hyper text help showing a page describing irregular frames. Full on-line documentation is provided using this system

Irregular frame control handle. Simply drag to re-shape the frame

ArtWorks graphic in another irregular frame showing text flowing both sides of the graphic

- Frame border control and irregular frame repel margins
- Instant irregular frame *and* frame contents rotate and scale with mouse
- Transparent frames, and full colour control of all objects, including RGB and CMYK colour models and over-print options
- Drag zoom for instant magnification of any part of the page

These features are in addition to the many renowned Impression capabilities, such as unrivalled printing facilities, full on-line help (over 400 pages of on-line hyper text documentation and Acorn interactive help), speed of use and ease of use, etc, all combine to make Impression the best all round document production solution - for *all* types of document.





If you take document creation seriously, then make sure you use the best available tool for the job.



Computer Concepts Ltd

Gaddesden Place
Hemel Hempstead Herts
HP2 6EX
Tel:0442 63933
Fax: 0442 231632
EMAIL Info@CConcepts.co.uk

Price 169 + VAT (£198.57 inc)

Upgrades

From Impression II before July 22nd '94 £29 + p&p + VAT (£37.60 inc.)
From Impression II after July 22nd '94 £49 + p&p + VAT (£61.10 inc.)
From Impression Style £70 + VAT (£82.25 inc.)
From Impression Junior £79 + VAT (£92.82 inc.)
From other word processors £120 + VAT (£141.00 inc.)

JPEG, PhotoCD & Clear file loaders - £39 + VAT (£45.82 inc) for the set.

2Mbyte RAM minimum, 4Mbyte and a hard disc recommended. Fully Acorn Risc PC compatible.

E&O Prices are subject to change

This advert was created, edited, laid out, and four colour separated using only Impression Publisher

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REGULARS

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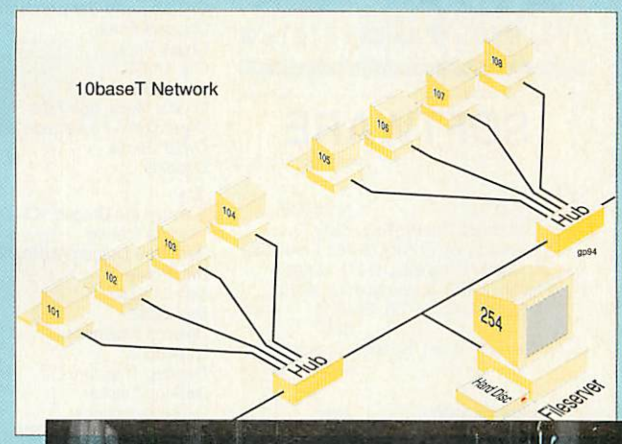
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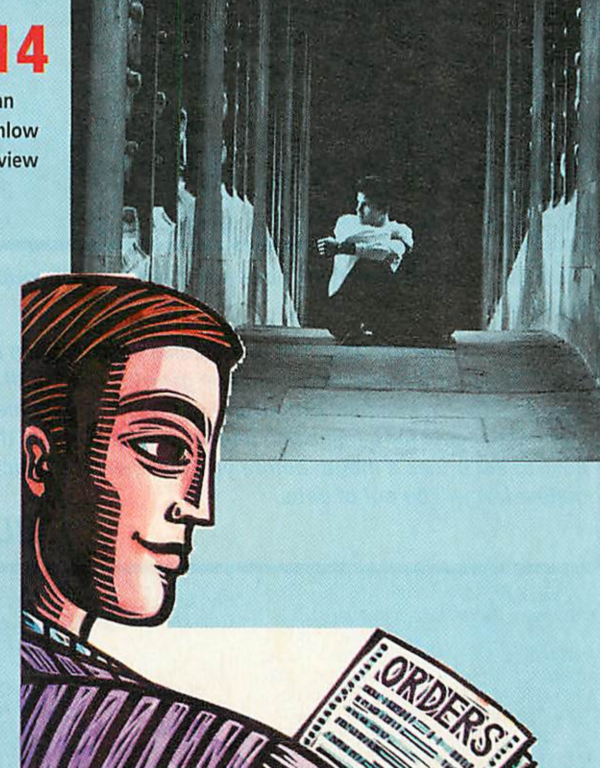
JULY 1994

FEATURES

HANDS ON



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Next issue on sale 14 July

Editor's letter

Networking is one of those subjects that you either understand or you don't. There are plenty of people out there who think they know all about it, but true experts are hard to find. That's why we've dedicated this issue to the subject of connectivity.

Our 12-page section takes you through all the different types of hardware available for networking, describes a selection of the best software for running on a network, and even tells you which are the best products for network managers. If you're still confused, there's a glossary of terms so even the most non-technical networker can sound knowledgeable.

Not only that, but we've been busily hacking the biggest network of all – the Internet – and if you want to find out how to do it, have a look at the first part in our series on networking the world. See you on the net.

Mark Moxon, Editor

ICS

051-625 1006

SOFTWARE

Price list prepared 24th May 1994

10 out of 10 — *10 out of 10*
– Dinosaurs, Driving Test, Early Essentials (-6), English (6-16), French (6-16), Junior Essentials (5-11), Maths Algebra (6-16), Maths Number (6-16), Maths Statistics (6-16), Spelling — each £18
– German, Italian, Science, Spanish — each £POA

Access for A3000 — *Acorn* — £138
Access for A3020/A4000 — *Acorn* — £138
Access for A5000 — *Acorn* — £143
Access for Risc PC 600 — *Acorn* — £118
Acorn Advance — *Acorn* — £88
– Primary Licence — £183
– Secondary Licence — £442
Advantage, KS2,3 — *Longman* — £46
Almanac 3 — *Stallion* — £64
Amazing Maths, KS1-4 — *Cambridgeshire* — £19
Animated Numbers, age 3-6 — *Sherston* — £19
Apollonius PDT — *Oak* — £149
ArcFax — *David Pilling* — £28
ArcFS 2 — *Vertical Twist* — £20
Archimedes Assembly Language — *Dabs* — vo £15

Cambridge Pascal — *Oak* — £65
CardShop — *Clares* — £19
Carnage Inc. — *Fourth Dim* — £18
Castle of Dreams, age 7-11 — *Storm* — £20
Cataclysm — *Fourth Dim* — £14
Chameleon — *4mation* — £33
Champions Compilation — *Krisalis* — £13
Chaos Engine — *Renegade* — £19
Chocks Away Compendium — *Fourth Dim* — £25
Chopper Force — *Fourth Dim* — £13
Chuck Rock — *Krisalis* — £17
Clip Art CD — *CC* — £18
Conjuguez — *Creative* — £25
Crystal Maze, age 7-70 — *Sherston* — £28
Crystal Rain Forest, age 8-11 — *Sherston* — £33
Cyber Chess — *Fourth Dim* — £24
Cycloids — *GamesWare* — £16

Darryl the Dragon, KS1,2 — *4mation* — £18
– site licence — £36
Darryl the Dragon Activity Sheets — *4mation* — £10
DataPower — *Iota* — £123
Demon's Lair — *Fourth Dim* — £13
DeskEdit2 — *RISC* — £25
Desktop Assembler — *Acorn* — £118
Desktop C — *Acorn* — £178
Desktop Thesaurus — *RISC* — £17
Desktop Tracker — *Vertical Twist* — £50
Digital Symphony — *Oregan* — £41
Dinosaur Discovery, KS2 — *4mation* — £25
– site licence — £54
Disc Commander — *Digital Phenomena* — £29
Disc Rescue — *Look* — £28
DrawBender — *ICS* — £10
– site licence — £30
Dungeon — *Fourth Dim* — £24

Easy C — *RISC* — £45
Easy Font — *Fabis* — £24
Ego: Repton 4 — *Superior* — £18
Elite — *Hybrid* — £32
Enter the Realm — *Fourth Dim* — £13
E-Type Compendium — *Fourth Dim* — £13

Granny's Garden — *4mation* — £23
– site licence — £48
Granny's Garden CD — *4mation* — £28
Granny's Garden Resource Pack — *4mation* — £15
Graphics on the ARM Machines — *Dabs* — vo £15
Graph_IT — *Sherston* — £19
GridPro — *4mation* — £35
– site licence — £70
Grievous Bodily 'ARM — *Fourth Dim* — £15

Hard Disc Companion II — *RISC* — £40
Haunted House — *Fourth Dim* — £18
Hearsay II — *RISC* — £69
Heimdall, limited offer — *Krisalis* — £13
HeroQuest — *Krisalis* — £13
Holed Out Compendium — *Fourth Dim* — £13
Home Accounts — *Minerva* — £28

Illusionist — *Clares* — £41
ImageMaster — *David Pilling* — £24
Impression — *Dabs* — vo £14
– with disc — £17
Impression Borders Pack 1 — *Fabis* — £10
Impression Borders Pack 2 — *Fabis* — £10
Impression Publisher — *CC* — £135
– OPI Supplement — £225
Impression Style — *CC* — £76
– site licence — £435
Interdictor 2 — *Clares* — £25
Investigator III — *Vertical Twist* — £42
Ixion — *GamesWare* — £16

Jahangir Khan Squash — *Krisalis* — £9
James Pond — *Krisalis* — £18
James Pond 2 - RoboCod — *GamesWare* — £19
Junior PinPoint, KS1,2 — *Longman* — £25
– primary site licence — £83
Junior PinPoint Datafile, KS2,3 – Animal Kingdom, Dinosaurs, Festivals, Food Glorious Food, Junior Olympics, The Victorians — each — *Longman* — £13

Keylink Prolog — *Keylink* — £69
Keystroke — *Quantum* — £24
Kid Pix, KS1,2 — *ESM* — £34
Knowledge Organiser 2 — *Clares* — £63
Krisalis Collection — *Krisalis* — £20

Landmarks. KS2,3 – Aztecs, Civil War, Columbus, Egypt, Elizabeth I, Rain Forest, Second World War, Victorians — each — *Longman* — £21
Landmarks – Microworld Invasion — *Longman* — £22
Landscapes — *Longman* — £46

Noot Art Disc — *4mation* — £10
Notate, KS2-4+ — *Longman* — £50

Oh No! More Lemmings (requires Lemmings) — *Krisalis* — £15
Omar Sharif's Bridge — *Krisalis* — £19

NO CHARGE FOR CREDIT CARDS

Orrery — *Spacetech* — £93
Ovation — *RISC* — £79
Oxford Reading Tree Stage 2 Story Books, age 5-7 — *Sherston* — vo £9
Oxford Reading Tree Stage 2 Talking Stories, age 5-7 — *Sherston* — £37

Padlock — *ICS* — £10
– site licence — £30
Pandora's Box — *Fourth Dim* — £13
PenDown, KS1-3 — *Longman* — £45
PenDown Etoiles, KS3,4 — *Longman* — £49
PenDown Outline Fonts — *Longman* — £17
PenDown Plus, KS2-4 — *Longman* — £67
Personal Accounts V3 — *Apricote* — £38
Perspectives — *TechSoft* — £54
Photobase – Landscapes — *Longman* — £47
Photodesk — *Spacetech* — £157
Photo Touch — *Oregan* — £68
PIMS — *Longman* — £339
PinPoint 2, KS3,4 — *Longman* — £79
– site licence — £340
PinPoint 2 Datafile, KS3,4 – 1851 Census, Britain since the 1930s, Diet and Nutrition, Far Away Places, Kartei - The German Questionnaire, Second World War, Solar System – each — *Longman* — £13
Placard — *ICS* — £10
– site licence — £30
Play It Again Sam 1 — *Superior* — £19
Play It Again Sam 2 — *Superior* — £19
Play It Again Sam 3 — *Superior* — £19
Plot — *Clares* — £63
Populous — *Krisalis* — £13
Powermonger — *Krisalis* — £22
Premier Manager — *Gremlin* — £21
PrimeArt, KS1-4 — *Minerva* — £58
PrimeMover, KS2-4 — *Minerva* — £69
PrimeSolver, KS1-4 — *Minerva* — £74
PrimeWord, KS2-4 — *Minerva* — £51
Printer Drivers, RISC OS: Canon BubbleJet, Canon LBP, Canon PJ1080, ColourCel, Epson JX, Epson ESC-P2, HP, Integrex 132 — each — *Oak* — £15
Deskjet 500C, Epson / Star colour — each — *RISC* — £15
ProDrivers: Canon LBP8, Epson ESC-P2, HP Colourjet — each — *Oak* — £33
TurboDrivers: Canon, Epson Stylus 800, HP — each — *CC* — £42
ProArtisan 2 — *Clares* — £102
ProArtisan 24 — *Clares* — £POA
ProArtisan 2CD — *Clares* — £129
ProCAD, KS4 — *Minerva* — £450
Programming in ANSI Standard C on the Archimedes — *Sigma* — vo £15
Prophet (requires 2 Mb) — *Apricote* — £145
Prophet Entry Level — *Apricote* — £8

Quest for Gold — *Krisalis* — £13
QuicKey — *ICS* — £10
– site licence — £30

Raw Power II — *GamesWare* — £16
Real McCoy 4 — *Fourth Dim* — £22
Recall, age 8-13 — *Sherston* — £37
Recordz — *Colton* — £97
RemoteFS Parallel Port — *Atomwide* — £49
RemoteFS Serial Port — *Atomwide* — £49
Render Bender 2 — *Clares* — £40
Rephorm — *Oak* — £47
Repro — *Oak* — £46
Repton 3 — *Superior* — £19
Resultz — *Colton* — £97
– secondary site licence — £470
Revelation — *Krisalis* — £9

We'll be changing the style of our ads over the next couple of months.

You'll notice that the length of this list has already been reduced. The number of Acorn products keeps growing, and until now we were listing a substantial proportion of them. It's become an impractical goal for a magazine advert. One problem is that we have to set prices a month before you see them, by which time quite a few will be out of date.

BUT ...

We can supply you with almost any Acorn product, whether it is listed here or not.

Just call 051-625 1006 for an immediate price on most items. (Our phone does tend to be busy, so sending an SAE for a full up-to-date price list may be a quicker option).

– with disc — £22
Archimedes Game Maker's Manual — *Sigma* — vo £15
Archivist Pro — *Oregan* — £36
Arcterm 7 — *Serial Port* — £58
Arcventure – I ... The Romans, age 10-12; II ... The Egyptians, age 8-9; III ... The Vikings, age 7-11 – each — *Sherston* — £25
Armlock — *Digital Services* — £33
— *Sherston* — £37
ArtWorks — *CC* — £112
– network licence — £650
– site licence — £545
ArtWorks CD — *CC* — £153
ArtWorks Made Easy — *Dabs* — vo £15
AudioWorks — *CC* — £45
— *Acorn* — £366
Aztecs, age 7-11 — *Sherston* — £37

Badger Trails, age 9-11 — *Sherston* — £35
Battlechess — *Krisalis* — £13
BBC Basic Reference Manual — *Acorn* — vo £22
Beginner's Guide to Wimp Programming on the Archimedes — *Sigma* — vo £13
Birds of War — *Fourth Dim* — £24

POSTAGE IS FREE
FOR PREPAID SALES IN THE UK

Bitfolio Cartoon Graphics — *Look* — £17
Black Angel — *Fourth Dim* — £24
Bodywise, age 9-14 — *Sherston* — £37
Bookstore — *ESM*
– Primary, KS1,2 — *ESM* — £35
– Secondary, KS3,4 — *ESM* — £53
Break 147 & Superpool — *Fourth Dim* — £24

C (new edition) — *Dabs* — vo £16
– with disc — £24

Eureka 2 — *Longman* — £93
Exotic Adventures of Sylvia Layne — *Fourth Dim* — £13

Fervour — *Clares* — £16
Find It! — *Appian* — £34
Fireworkz — *Colton* — £123
First Logo, KS1,2 — *Longman* — £21
First Page, KS2-4 — *Longman* — £42
First Steps in Programming Acorn RISC OS Computers — *Sigma* — vo £15
Flossy the Frog, KS1 — *4mation* — £23
– site licence — £48
Flossy the Frog Art Disc — *4mation* — £10
Fontasy — *ICS* — £15
– site licence — £45
Fontasy / DrawBender / Placard — *ICS* — £30
– site licence — £80
Font Directory — *Look* — £28
FontFX — *Data Store* — £9
– site licence — £70
Fonts Pack 1 — *Fabis* — £15
Fonts Pack 2 — *Fabis* — £15
Food for Thought, age 7-16 — *Sherston* — £15
F.R.E.D. — *GamesWare* — £15
Freddy Teddy — *Topologika* — £15
– Balloons & The Zoo — *Topologika* — £20
– The Playground — *Topologika* — £25
– The Puddle & The Wardrobe — *Topologika* — £20
Freddy Teddy's Adventure — *Topologika* — £15
Fun School 4 — *Europress*
– age -5, age 5-7, age 7-11 — each — £17

Galactic Dan — *Fourth Dim* — £15
Games Wizard - The Apprentice — *GamesWare* — £17
Genesis Professional — *Oak* — £112
Genesis Project — *Oak* — £47
Genesis SDK — *Oak* — £750
Gods — *Krisalis* — £17

Last Ninja — *Superior* — £13
Lemmings — *Krisalis* — £17
Lemmings II (Tribes) — *Krisalis* — £20
Little Red Riding Hood, age 5-8 — *Selective* — £13
Logo, KS1-4 — *Longman* — £55
Lotus Turbo Challenge 2 — *Krisalis* — £18

Magic Pockets — *Renegade* — £18
Magnetoids — *Oregan* — £23
Magpie — *Longman* — £50
Manchester United — *Krisalis* — £9
Manchester United Europe — *Krisalis* — £13
Master Break — *Superior* — £13
Masterfile III — *RISC* — £45
Maths Circus — *4mation* — £25
– site licence — £53
Micro Music — *Fisher-Marriott* — £19
Monotype Fonts (Pack 1) — *Look* — £76
Morpheus — *Oregan* — £29
MultiFS — *Arxe* — £29
Music Box — *Topologika* — £32

Naughty Stories (5-7) (set of 6) — *Sherston*
– Volume 1 — £39
– Volume 1 primary site licence — £99
– Volume 2 — £39
– Volume 2 primary site licence — £99
Nebulus — *Krisalis* — £17
NightSky — *Clares* — £63
Noddy's Big Adventure — *Jumping Bean* — £18
Noddy's Playtime — *Jumping Bean* — £18
Noot — *4mation* — £41
– site licence — £88

All ICS business is done on Acorn computers using RISC OS software

Revelation 2, KS2-4	Longman	£65
Revelation 2 CD Rom	Longman	£90
Revelation ImagePro	Longman	£125
Rhapsody 3	Clares	£75
Rhythm-Bed	Clares	£38
RISC OS 3 Applications Upgrade	Acorn	£10
RISC OS 3 First Steps	Dabs	vo £15
RISC OS 3 Programmer's		

Time Traveller, KS2	ESM	£39
– Britain Since the 1930s, KS2		£28
– Create Your Own Timelines, KS2,3		£37
– Expansion, Trade and Industry, KS3		£37
– Making of the United Kingdom, KS3		£37
– Medieval Realms, KS3		£37
– Tudor and Stuart Times, KS2		£33

PLEASE TELL TIM . . .

Tim NiceButDim doesn't understand how we can possibly sell all these goodies for less than the maker's price. Sometimes he doesn't even check our price, but just assumes it will be cheaper to buy from the maker. It's a shame really.

We'd like to explain to Tim that there's really no mystery. We buy large quantities, and so we get a discount. We pass some of it on to our customers. And the goods we sell are exactly as they would arrive from the makers.

ICS PRICES ARE JOLLY GOOD.

Reference Manual	Acorn	vo £99
RISC OS 3 User Guide	Acorn	vo £22
RISC OS 3 User Guide for Risc PC 600	Acorn	vo £22
RISC OS Style Guide	Acorn	vo £13
Risc PC 600 Technical Reference Manual	Acorn	vo £POA
Risc PC 600 Welcome Guide	Acorn	vo £8
Saloon Cars Deluxe	Fourth Dim	£24
– Deluxe Extra Courses		£15
S-Base 2 Developer	Longman	£189
S-Base 2 Developer Plus	Longman	£345
S-Base 2 Personal	Longman	£109
Schedule	Acorn	£18
Schema 2	Clares	£95
Score Draw	Clares	£45
Sea Rescue, age 7-9	Sherston	£24
Sensible Soccer	Renegade	£19
Serenade	Clares	£79
Shylock Gnomes, age 10-15	Selective	£16
Sibelius 6	Sibelius	£149
Sibelius 7	Sibelius	£789
– education and amateur price		£464
Sim City	Krisalis	£22
Simon the Sorcerer	GamesWare	£29
Sleuth	RISC	£41
Small	Virgo	£19
smArt	4mation	£46
smArt Aliens, Animals, Dinosaurs, Egypt, Europe†, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *English/French/German/Spanish/Welsh; †English/French/German; please specify each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
SolidCAD	Silicon	£77
Somerset Talking Computer Project Learning Materials	Longman	vo £29
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speedball II	Krisalis	£17
Splash, age 7-11	Sherston	£17
Split an Image, age 7-16	Sherston	£16
Spooler (Clares)	Clares	£12
Spooler (Comp Tut)	Computer Tutorial	£9
Squirrel 2	Digital Services	£127
– site licence		£545
Squirrel C Developer's Toolkit	Digital Services	£97
Starspell Plus	Fisher-Marriott	£19
Striker	GamesWare	£21
StrongED 3	Stallion	£22
Stunt Racer 2000	Fourth	£24
Stunt Racer 2000 Extra Tracks	Fourth	£16
Swiv	Krisalis	£9
Talking PenDown, KS1-3	Longman	£53
Talking Pictures	Wyddfa	£18
Talking Pictures Welsh (Lluniau Llafar)	Wyddfa	£18
Talking Stories – Gwen at the Fair, Gwen goes to School, Gwen's Nose, Gwen's Tummy each	Wyddfa	£17
Target Maths, age 6-13	Triple R	£16
Technodream (Nevryon 2)	Superior	£19
Time Detectives ... The Victorians, age 7-11	Sherston	£37

– The Victorians, KS2		£30
Titler	Clares	£79
Topographer	Clares	£61
Touch Type	Iota	£38
– site licence for 10		£137
Trace	David Pilling	£9
Twain Canon IX incl Scan-Light Professional	David Pilling	£16
Twain Epson GT8000, 6500	David Pilling	£16
Twain HP Scanjet II, IIc, IIcx	David Pilling	£16
TWO (Task and Window Organiser)	ICS	£10
– site licence		£30
TypeStudio	RISC	£38
Vector	4mation	£75
Victorians, age 7-11	Sherston	£POA
Viewpoints, age 7-11	Sherston	£36
Virtual Golf	Fourth Dim	£23
Visual Backup	Dabhand	£39
Vox Box	Clares	£40
Waiter	Digital Services	£35
WimpGEN	Silicon	£79
WordWorks	CC	£36
Wordz	Colton	£75
WorraCAD	Oak	£65
Xenon 2	GamesWare	£19

HARDWARE

Zelanites (not OS 3)	Micro Power	£15
Zool	Gremlin	£18

COMPUTERS . . .

Risc PC 600 with 1 year's on-site support		
– 2M HD210 14" Monitor	Acorn	£1245
– 2M HD210 17" Monitor	Acorn	£1645
– 5M HD210 14" Monitor	Acorn	£1395
– 5M HD210 17" Monitor	Acorn	£1795
– 9M HD420 14" Monitor	Acorn	£1695
– 9M HD420 17" Monitor	Acorn	£2095

CALL FOR LATEST RISC PC OFFERS

MEMORY . . .

Fitting extra unless otherwise stated
† Fitting fairly easy ‡ Fitting needs expertise

A3000 1-2 Mb †	IFEL	£58
A3000 1-4 Mb †	IFEL	£105
A3010 1-2 Mb		£35
A3020 / A4000 2-4 Mb †		£88
A305/310/440 1-2 Mb soldered ‡	IFEL	£83
A305/310/440 1-4 Mb soldered + MEMC1a‡	IFEL	£158
– as above + fitting		£188
A5000 2-4 Mb †	IFEL	£70
A5000 2-8 Mb including fitting	Atomwide	£500
A5000 4-8 Mb including fitting	Atomwide	£391
A540 4 Mb †	Acorn	£238
Risc PC 1 Mb VRAM	Acorn	£127
Risc PC 2 Mb VRAM	Acorn	£195
Risc PC 2 Mb VRAM	HCCS	£148
SIMM 2 Mb 32 bit		£POA
SIMM 4 Mb 32 bit		£POA
SIMM 8 Mb 32 bit		£POA
SIMM 16 Mb 32 bit		£POA

SCANNERS, DIGITISERS . . .

Eagle M2	Wild Vision	£319
GreyHawk	Wild Vision	£98
Hawk V9 MkII	Wild Vision	£195
– A3000 Series		£195
Scan-Light A4	CC	£277
Scan-Light 256	CC	£185
– A3000 External	CC	£190
– A3000 internal	CC	£190
Scan-Light Professional	CC	£550
– as above + SCSI interface	CC	£699
Scan-Light Video	CC	£208
Scan-Light A3000/A4000	CC	£208
Vision 24	HCCS	
– A3000/3010/3020/4000 internal		£96
– A3000 external		£109
– A5000/400/300/RPC600		£96
Vision 24 508 line	HCCS	
– A3000/3010/3020/4000 internal		£134
– A3000 External		£109
– A5000/400300/RPC600		£134

PRINTERS . . .

A4-1200/1 Direct Drive Laser Printer	Calligraph	£989
Bubble Jet BJ-10sx	Canon	£175
Bubble Jet BJ-10sx + TurboDriver	Canon/CC	£219
Bubble Jet BJ-230	Canon	£315
Bubble Jet BJ-300	Canon	£325
Bubble Jet BJ-330	Canon	£380
Bubble Jet BJC-600	Canon	£425
Bubble Jet BJC-600 + TurboDriver	Canon/CC	£465
Bubble Jet BJC-800 + TurboDriver	Canon/CC	£1219
DeskJet 500C	Hewlett-Packard	£279
DeskJet 510	Hewlett-Packard	£225
DeskJet 550C	Hewlett-Packard	£445
DeskJet 560	Hewlett-Packard	£415
Laser Direct HiRes4	CC	£748
– 250-sheet Paper Cassette		£99
Laser Direct HiRes8	CC	£1049
Laser Direct HiRes Board	CC	£325

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SUNDRY . . .

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486 PC Card 25 MHz Bare	Aleph One	£357
486 PC Card 50 MHz 4 Mb	Aleph One	£591
486 PC Card 50 MHz Bare	Aleph One	£434
A300/400 Fan kit	ICS	£15
A305/310/440 RISC OS 3 Carrier Board ‡	IFEL	£19
A5000 Fitting Kit for second hard disc	ICS	£15
Backplane, 4-slot 4-layer with fan	IFEL	£55
Case Upgrade only for Risc PC 600 2M and 5M	Acorn	£98
ColourBurst	State	£374
ColourCard Gold	Wild Vision	£225
– A3000 External	Wild Vision	£225
Dongle Dangle with screw fittings	ICS	£6
EPL Toner Cartridge for LBP-4		£59
EPS Toner Cartridge for LBP-8		£75
Ethernet Network Interface Card for Risc PC 600	Acorn	£98
Fan filters (pack of 10) (not A5000)	ICS	£6
Floating Point Accelerator (A5000 + A540)	Acorn	£93
ideA Removable Hard Disc Fitting Kit for A5000	ICS	£25
Micro Mouse	Clares	£25
Monitor Stand for A3000	ICS	£25
Mono/SCSI	Atomwide	£48
Pc Card (includes Novell DR DOS), special offer	Acorn	£99
Power Pad (Dual)	GamesWare	£33
Power Pad (Single)	GamesWare	£25
Power Switch	GamesWare	£17
Printer Paper A4 Colour, 500 sheets		£40
Printer Port Sampler	Vertical Twist	£39
Printer/SCSI	Atomwide	£74
Revolution CD-ROM	Morley	£295
Revolution Pro (for SCSI system)	Morley	£435
RISC OS 3 Software Upgrade Kit	Acorn	£77
Seal 'n Type spill-proof Keyboard Covers		



051-625 1006

– Archimedes / A5000	Kador	£14
– A3000	Kador	£14
SVGA Multiscan ES Monitor 14"	Acorn	£320
SVGA Multiscan PS Monitor 17"	Acorn	£990
SVGA Multiscan Monitor 14"	Acorn	£315
– bought with computer		£250
Ultimate CD ROM Dual Speed for Risc PC 600	HCCS	£198
Ultimate CD ROM Dual Speed, MultiPodule (needs PSU upgrade)	HCCS	£223
Whisper Fan Quietener (for A300/A400 series only)	ICS	£15
Wizzo IDE Filing System on rom	ICS	
– Wizzo4 for A4 – now available		£39
– Wizzo5 for A5000		£39
Wizzo SyQuest Complete Package		£295
– Extra 105 Mb Disc		£60



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Hostages • Last Ninja
Manchester United Europe
Master Break
Pandora's Box
Populous
Quest for Gold
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While stocks last

For ordering details please turn to page 3



HOW TO ORDER

VAT: Zero-rated items are marked V0. UK customers please add 17.5% to all other prices. EC customers outside the UK (including BFPO) please do the same unless you are VAT registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

Cheques should be made payable to Ian Copestake Limited.

Credit cards are welcome. We do not charge your account until your order is fulfilled. Your name and address must be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due. We will make no charge for credit card commission unless we have informed you first.

Official orders are welcome from UK government and educational institutions. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences are available for most products. Please check our prices.

All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover

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Unrepeatable prices for a few items because we want to reduce our stock levels

486 PC Card 25 MHz 4 Mb	£460
ColourBurst	£335
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HiVision colour A3000 Series internal	£125
HiVision colour A5000/400/300	£125
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RemoteFS	£43
Scan-Light Professional + SCSI Interface	£625
Schedule	£15
Whisper Fan Quietener (for A300/A400 Series only)	£10

Offer applies only while stocks last • VAT extra

A5000 users

Now you can ...

- ***back up your data quickly***
- ***store it somewhere safe***
- ***carry it around easily***

Using our SyQuest removable hard disc system is like having 100 floppy discs rolled into one!

£295 buys everything you need – a drive, a fitting kit, and one 105 Mb disc (tested and formatted).

Extra discs cost just £60 (about the same per megabyte as floppies).

We can also supply the fitting kit on its own for £25.

FREE Wizzo filing system with every complete package

– gives you password protection
– permits access to more than 512 Mb of storage
– allows fixed hard discs to be partitioned

- ***270 Mb version available soon***
- ***Also available for Risc PC – please enquire.***

A3000 Series users

- ***Fed up with swapping discs?***
- ***Wish your filing system was 30 times faster?***

Just follow these instructions:

1. Order a hard disc upgrade from ICS (the best you can buy).
2. Open your computer and plug in the disc (it's that simple).
3. Put the lid back, switch on, and

enjoy an easier life!

Our discs come ready to use – formatted and tested – with full instructions. No extras are needed.

Choose your size (e.g. A3IN80 is 80 Mb):

A3IN60	£190
A3IN80	£225
A3IN120	£275
A3IN130	£315
A3IN240	£399

Please tell us whether you use RISC OS 2 or 3.

Hard disc upgrades are also available for other computers.



ICS

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Merseyside, England, L48 5ET

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LICENSED CREDIT BROKER



Talk about publishing

ACORN'S Publishing Systems division, along with business partner AB Dick-Itek, recently attended the NorthPrint '94 exhibition in Harrogate, where considerable interest in the new Risc PC-based Graphtex low cost pre-press printing systems was generated.

AB Dick-Itek used the event to debut its new £40,000 DPMS1000S digital printing plate maker, which was demonstrated running on a Risc PC system.

Both Acorn's Simon Woodward and AB Dick-Itek's managing director David LeSage, described the reaction to the Acorn-based systems on display as 'terrific'.

'We obtained lots of leads from the show and even took an order for a colour system on the first day,' said Woodward, who added: 'Frankly, we were amazed at the level of interest shown by image-setter vendors.'

LeSage confirmed that he expected the new Risc PC to enable many more systems to be sold, compared to the old A5000-based package. 'There are significant user-benefits over the A5000,' he said. 'I think Risc PC answers three or four key issues.

'First is communications – the Risc PC can now take files from any of the main printing industry platforms. Then there is 24-bit colour. Although our systems are primarily for single colour work, the 24-bit colour option is there to attract users who have the extra know-how.

'Acorn has also guaranteed the effective life of the machine through its processor upgrade policy and the PC compatibility option to come is another important factor,' he continued. LeSage told *Acorn User* that he expects to sell Risc PC-based Graphtex systems in their hundreds this year.

Woodward explained that compared to rival PC and Mac-based systems, the Risc PC Graphtex system alternatives were very affordable, offered comparatively superior performance, all in a one-stop solution from AB Dick-Itek.

For more information on Graphtex systems, contact AB Dick-Itek on 081-568 9297 or fax 081-847 0779.



Simon Woodward and David LeSage say farewell to the "old A5000-based package"

I/O expansion card

PAUL FRAY Control Systems in Cambridge has produced a single-width version of the old Acorn double-width I/O expansion card.

The card has a BBC Micro compatible User Port, analogue port and 1MHz bus and can be used for attaching specialist keyboards, control devices and enabling some games software like Acornsoft *Snapper* to run under the 6502 emulator!

The MIDI sound function of Acorn's original card is not included but is available separately from other suppliers.

Up to 128K byte EPROMs can be fitted to the card containing custom software if required. Acorn's I/O podule software is inc-luded under licence. The podule interface has been improved for reliable use in an A5000 or the new Risc PC.

The card is priced at £129 + VAT. For more information contact Paul Fray on (0223) 441134 or fax (0223) 441017.

Blunder box

We would like to appologise to Suzanne Deakin (The artist of the commisioned artwork for last month's article on What makes Acorn tick) for printing the wrong name next to her work.

Optical

NEUROTRON Software has made a lot of changes to the optical character recognition (OCR) package *Optical* since we reviewed it at the end of last year.

Optical is now faster, more reliable and has improved font-learning abilities, according to author Martin Dawe.

The professional version now has direct Computer Concepts ScanLight scanner input too.

Next to be added to the features list is a virtual memory system for large scanned images. *Optical* is priced at £59 (no VAT) and the professional version at £119.

For more information on *Optical*, contact Neurotron Software on (0227) 700516.

ExpLAN

Attention all schools using Acorn Pocket Books. ExpLAN UK Ltd has produced *Explorer*, a versatile Risc OS application which is designed to let teachers set up and generate data acquisition forms which can then be downloaded into Pocket Books for students to use in field trips and so on. Completed forms can then be retrieved and processed back on a desktop Acorn.

Explorer is priced £79 + VAT and is designed for use with Pocket Book class sets. ExpLAN is on (0822) 613868 or fax (0822) 610868.

Monitorless RiscPCs

Acorn has reconsidered its policy of forcing Risc PC customers to buy a monitor with their computer, after pressure from people who already have a suitable monitor or want an alternative.

Dealers are now able to offer Risc PCs without a monitor to individuals buying a single system, though at press time it wasn't clear what the policy change would amount to in savings. Monitors are already optional with Acorn Publishing systems and all models sold in Germany.

Simtec news

Simtec has produced a very cost-effective 4-8Mb memory upgrade for A300, A400, A3000 and A5000 machines, consisting of a pair of small boards which plug into the Rom and MEMC chip sockets.

Early A5000s require a board modification. Price: £249 + VAT for all versions except the A5000 which is £10 more.

Simtec raised eyebrows with its *Acorn User* Spring Show special offer of a 256Mb Risc PC upgrade for £8999 + VAT, with a Risc PC thrown in free!

It may have sounded like an unlikely show stunt (256Mb upgrades don't exist yet) but *Acorn User* knows of at least one customer who is considering one for a publishing system. Simtec is on (0772) 812863 or fax (0772) 816426.



Major deals for Arm ltd

A RISC PC of the future containing four or more Arm processors is not beyond the realms of possibility, thanks to an Arm Ltd and VLSI Technology deal with IBM to supply Arm CPU cores for a new peripheral communications standard called SSA (Serial Storage Architecture).

At the same time, Arm Ltd announced its latest chip fabrication licence, this time to the Korean industrial giant Samsung. Acorn, which is a 40 per cent share holder in Arm Ltd, saw its shares jump to a year's high of 96p after the deals were published.

SSA is an IBM project to establish an industry standard successor to high speed storage communications systems like SCSI (small computer systems interface) which will provide an inexpensive, yet very fast, mass storage communications interface for hard drives and related peripherals.

SSA uses ultra high speed serial technology to squeeze up to 20 megabytes of data per second down a wire. An SSA cable would contain four such wires giving a potential 80 megabytes per second of data transfer performance. IBM wants to use embedded Arm processors to manage the framing and error correction of data packets at each end of an SSA link.

So an SSA interface card would have an Arm in it and so would the hard drive, hence the crystal-gazing idea of a four-Arm Risc PC, with twin main Arm CPUs plus an SSA interface card and hard drive. This reality is a couple of years away yet, but entirely credible.

Arm Ltd could conceivably corner the market in SSA controllers, with millions produced per year if IBM's standard is adopted. Apple is working on a rival technology called FireWire.

The Samsung deal is huge because of the company's sheer size – it's one of the largest companies in Korea.

At present it's expected that Samsung will fabricate its own Arms for use in internal products like laser printers and fax machines.

However, there is always the possibility that they could become another open market chip source competing with VLSI Technology, GEC-Plessey Semiconductors (GPS) and Sharp. For Acorn watchers the news is good, because the future of Arm processor technology is even more assured.

This means the Acorn platform won't find itself without crucial Arm processors for the forseeable future. That's not something which could have been said with much confidence five years ago.

VLSI Technology, one of several Arm licensed chip foundries, has started sample deliveries of 40MHz Arm6-core processor products and Acorn confirms that it has working 40MHz Arm610 processor modules for the new Risc PC.

VLSI has been able to increase the clock rate of the chips by reducing the silicon fabrication to a 0.6 micron process. One wonders if or even how long it will be before the familiar independent Arm3 processor upgrade makers start to offer 40MHz or hand-picked faster options for Risc PC users.

VLSI Technology has also announced it has extended its technology alliance with Arm Ltd for a further two years.

Psion fax modem

PSION, which owns the Psion Dacom modem manufacturer, has at last produced a dedicated fax and data modem for the 512K version of the Series 3a pocket computer.

The Series 3a has proved to be a popular alternative among Acorn users to Acorn's Pocket Book, outside of the Pocket Book-specific education arena.

Unfortunately, this means the new modem, called 3Fax, is not compatible with older Mk1 Series 3 models, the lower capacity 256K Series 3a or the current version of the Acorn Pocket Book.

Series 3 and Pocket Book users have always been able to use ordinary data modems, but until now there has been no software to exploit the growing availability of fax send and receive facilities now included with modern modems. 3Fax is a slimline fax/data modem, with a Psion-matching case, which includes key fax software, though a fax receive facility isn't included.

The modem can also be used to access conventional data services like bulletin boards – free introductory membership to CompuServe is included. Psion plans to set up dedicated e-mail gateways for 3Fax users to access public information from airline timetables to libraries.

The sample fax output we've seen, which combines spreadsheet charts and formatted text in a variety of fonts, is most impressive – you'd never have guessed it originated from a tiny pocket computer. Just two AA batteries can provide up to 16 hours of continuous use, which equates to about a thousand faxed pages.



3Fax — Unfortunately only usable with the 512K Series 3a

On the data modem side, 3Fax has a simple V22bis (2400bps) specification, with no mention of any error correction or compression protocols like V42.

3Fax is priced at £199.95 inc VAT. Psion plc can be contacted on 071-262 5580 or fax 071-402 3144.

New A4 warranty

A new warranty scheme for Acorn A4 portable computers has been introduced. A revised one-year warranty is now included in the purchase price but there is also a new extended three-year warranty on offer. The deal costs £149.95 inc VAT and includes on-site maintenance cover.

Tracker producer

If SoundTracker music is your thing, Mycroft Software, a new name in the Acorn market, is worth investigation. Mycroft has produced *HQTracker* for producing SoundTracker-style digital sound tracks.

Mycroft says *HQTracker* is very easy to use and is documented for programmers wanting to incorporate tracks into their own applications.

The price is £25 and for more information write to 53 Cottonmill Lane, St. Albans, AL1 2ER.

More languages

Henley-on-Thames-based LCL has built on the success of, *Micro Spanish*, by converting all its other foreign language courses to include interactive speech.

This adds *Micro French*, *Micro English* and *Micro German* to the LCL repertoire. All three courses are designed around the National Curriculum and a guide to attainment target levels is provided.

Each course is priced £24.99 and previous purchasers of the non-speech versions of these courses can upgrade for £5. LCL can be contacted on (0491) 579345.

Minerva innocent

Minerva Software has been approached by PC software house Sierra Online, who claims that Minerva's *PrimeSolver* is similar to one of its PC games.

Minerva is stating that it has not infringed any copyright and that confirmation of this has been received from a professional body. *PrimeSolver* is on offer at only £59 + VAT, from Minerva on (0392) 437756 or fax (0392) 421762.



New Pilling packages

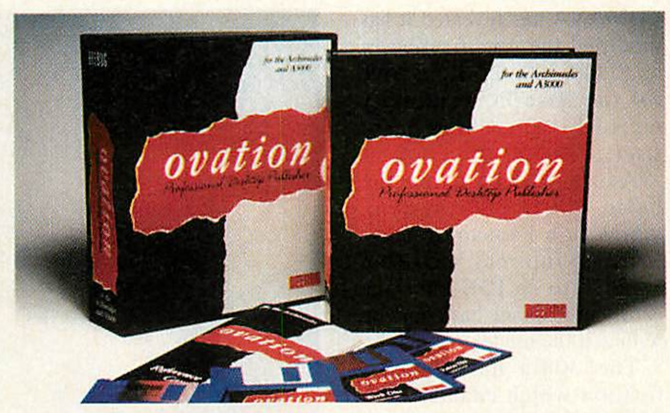
ACORN USER has been in touch with David Pilling, the author behind popular packages from *Ovation* DTP and the *Hearsay* communications application, file compression software like *SparkFS*, *ArcFax* fax modem software and the new *ImageMaster* scanning and image processing package, which he markets himself.

David has been working hard recently to ensure his software is fully Risc PC-compliant and at the same time some new features are being added. New versions of *SparkFS*, *ImageMaster*, and *Hearsay* now take advantage of Risc PC features. David reports: '*ArcFax* 1.11: almost all versions of *ArcFax* will crash when run on the Risc PC. This is due to the *ArcFaxFix* module.

'It is loaded in the *Run* file, so you can easily remove it as a quick way of getting going again. This module implements the embedded commands. 'I have produced a new version of the module 0.04 which does work on the Risc PC. This module should also fix the old 1.0X disc.

'*SparkFS* 1.26 works on a Risc PC with no problems. Version 1.27 does away with the use of system sprite space, and implements memory management in a Risc PC dynamic area. '*ImageMaster* 1.01 works on a Risc PC, as long as you stay in old screen modes. Version 1.03 has support for new Risc PC 16 and 32bpp screen modes. Additions include undo/redo and there are assorted bug fixes.'

David Pilling is contactable at PO Box 22, Thornton Cleveleys, Blackpool, FY5 1LR or on e-mail at david@pilling.demon.co.uk



Ovation from Risc Developments was written by David Pilling

On the road

FRANK BURDETT, Acorn's marketing manager for educational promotions, reports that the response to the Risc PC launch roadshow, has been overwhelming.

On average, 50% more people have been turning up to meet the Risc PC local launch events all over the country, including a surprising number of teachers and IT advisors who aren't currently Acorn customers.

'Reaction has been completely positive,' said Burdett, adding 'I don't think I've heard a single negative point about the Risc PC from one of the events so far.'

Burdett explained: 'I think people are coming to find out what the Risc PC is all about. There seems to be a general level of uncertainty about the future direction of personal computer platforms with the introduction of the Power PC and I think we're benefiting from it.'

Peter Talbot, Acorn's education manager, was equally bullish: 'By the time the roadshow has been completed we expect to have seen over 5,000 teachers and advisors. One particular triumph is that a key non-Acorn ILEA is now evaluating Risc PCs for their secondary schools.' The secondary market is a key avenue for Acorn expansion, where compared to its dominance in the primary market, Acorn has had stiffer competition from PCs and Apples.

Roadshow events are continuing into the beginning of July, so if you'd like to find out if the roadshow is coming to your area, call Acorn's hotline on (0800) 800480 for details.

Impression shipping

THE WAIT has been a long one, but *Impression Publisher* has now started to ship.

The main additions to *Publisher* over *Impression Style* include 4-colour separation support, irregularly-shaped frames, named master pages with bleed control, comprehensive colour control and speeded up formatting. No less than seven floppy discs are supplied and a full installation requires 5Mb of hard disc storage. A suite of image loaders covering JPEG, TIFF, Photo CD and Clear Files are also available separately for £39 + VAT.

Impression Publisher is priced at £169 + VAT on its own, but there are several lower-cost upgrade options to existing *Impression* and *Style* users. One point to make clear is that while the upgrade price from *Impression II* (ie, if you have an Impression dongle) is just £29 (special price for orders before 22 July), upgrading from *Style* only (which has no dongle) will cost £70.

For more information, contact Computer Concepts on (0442) 63936.

Vouchers

Schools buying Acorn A3020 or A4000 computers with a CD-Rom drive and the prize-winning Interactive Learning Products British Birds CD-Rom are eligible for the latest Acorn special offer – a £50 voucher towards entrance fees to RSPB wildlife sanctuaries, ideal for school field trips.

The voucher will cover an average-sized class and the offer is open until August. For more information, contact your local dealer or Acorn on (0223) 254254

Charts & Graphs V.2

Isle of Wight-based Computer Tutorial Services Ltd has released version 2 of its *Charts and Graphs* application. The new version is Risc PC compatible and screen mode independent.

Other additions include multiple graph capabilities, *Draw* file printing and 3D graphs.

Charts and Graphs is priced at £19.95 + £1 p&p and includes VAT. Contact CTS Ltd on (0983) 294333 or fax (0983) 298439.

New Epson colour ink-jet

Epson has produced a colour version of its innovative Stylus piezo-electric printer.

The piezo-electric mechanism actually pumps ink through the print head's microscopic nozzles as opposed to vaporising the ink into bubbles through bubble-jet print heads.

Bubble-jets have a lower 'top speed' than piezo-electric and Epson claims that its system is more accurate and suffers from less ink spread on the paper.

The Stylus colour prints at both 360dpi and a remarkable 720dpi.

The Epson Stylus is a large unit, dwarfing its Canon counterpart, but the extra bulk isn't reflected in its price, which should match the Canon when it starts to ship.

The Epson Stylus Colour is expected to sell in the region of £500. Epson is on (0442) 61144



Training centres

Readers might not be aware that Acorn has a comprehensive programme of training events lasting between one and two days at various sites around the country.

Venues include Cambridge, Winchester, Sandwell, Durham, Glasgow and Wolverhampton and course charges range from £79.90 to £293.75.

Aspects of Acorn interest covered include software training to support and servicing. Two of the courses are Multimedia Workshop and DTP Design. Courses are available, with the exception of August, throughout the year. For more information, contact Acorn's Training Centre on (0223) 254386 or fax (0223) 254269.

Serving Risc PC

Gnome Computers Limited, a long-time supporter of Unix-related Acorn software, has produced a Risc PC version of its X Windows server software.

X server provides X Windows connectivity with X Windows workstations running on a network. 1280x1024 pixel, 256 colour and 800x600 24-bit colour (True Colour) screen modes are supported, apparently at a fraction of the cost of comparable X terminals.

Risc OS applications can be run at the same time as the *X* server. For more information contact Gnome on phone/fax (0480) 406164 or e-mail support@gnome.co.uk.

Open day

The University of Sussex is holding an open day on 7 July. The event will have a workshop on the use of Archimedes and presumably Risc PC computers in teaching mathematics, with the accent on graphics.

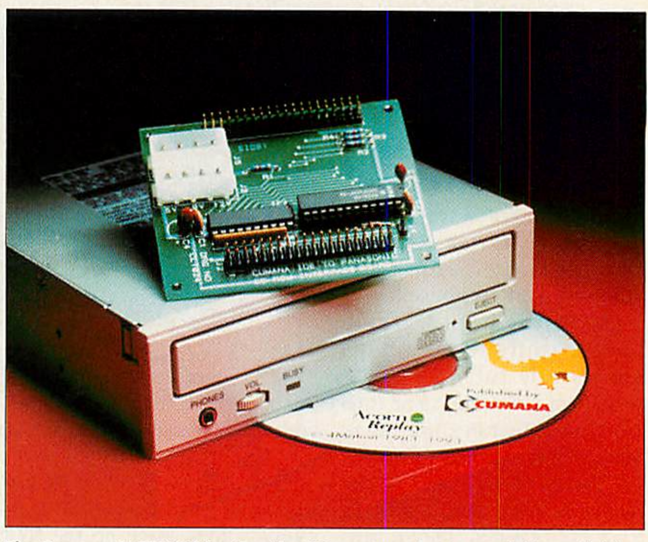
A *DrawBasic* procedure library will be launched at the event with software and documentation included in the cost of the workshop, which is £26. If you would like to attend, please contact Mrs. M.Purton on (0273) 678103 .

Cumana SLCD 300ia

CUMANA has revealed it has modified the specification of its SLCD 300i CD-Rom drive for the Risc PC originally reported last month in *Acorn User*.

Acorn will be using the basic SLCD 300i system, which is a Panasonic tray-loading internal CD-Rom coupled to an IDE interface card, but Cumana has come up with a 300ia model.

The 300ia has a modification which enables both internal computer-generated sound and CD audio direct from the CD-Rom drive to be tapped off the single Risc PC headphone connector/internal speaker.



The Cumana SLCD 300i for the Risc PC — now a better model is available

The SLCD 300ia is priced at £249.95 + VAT, which is apparently £50 more than the Acorn-badged version.

Cumana also says it has had discussions with both its CD-Rom mechanism suppliers, Sony and Panasonic, regarding the problem of tray-loading when a Risc PC is placed in mini-tower side ways configuration.

'It's possible a clip arrangement might be an answer, but this could require a manufacturing change in the Far East, which could push the price up,' said a company spokesperson.

For the time being, Cumana suggests customers who want reliable sideways CD-Rom loading should opt for the more expensive CD 600 SCSI solution, which is based on a Sony mechanism which accepts caddies. Cumana can be contacted on (0483) 503121 or fax (0483) 451371.

In conjunction with Acorn, Cumana has supplied 1127 CD-Rom drives to primary schools as part of the government-funded NCET scheme to establish multimedia in schools.

Cumana's new SCSI 2 interface card, which can work in a high-speed DMA (direct memort access) mode in the Risc PC, is to be priced at £199 + VAT.

Northern Ireland's Western Education and Library Board has upgraded 412 Acorn A3000 computers in 202 schools by fitting Cumana EMU (expandable multi use) boards, which include user ports, hard drive interfaces and 60Mb hard drives.

EMU cards can be expanded to include SLCD CD-Rom interfaces as well as SCSI for faster hard drives and other peripherals like scanners and magneto optical drives.

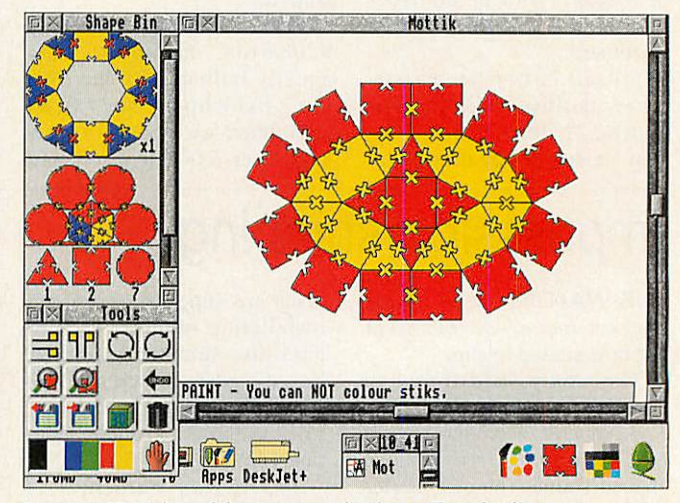
Gallery interaction

A CHILDREN'S interactive workshop, called Design Works, is being held at the Birmingham Gas Hall Gallery until 4 September.

Partly sponsored by Acorn, Topologika has produced a new application called *Mottik*, which is a computerised simulation of construction play bricks produced by Mottik International Ltd.

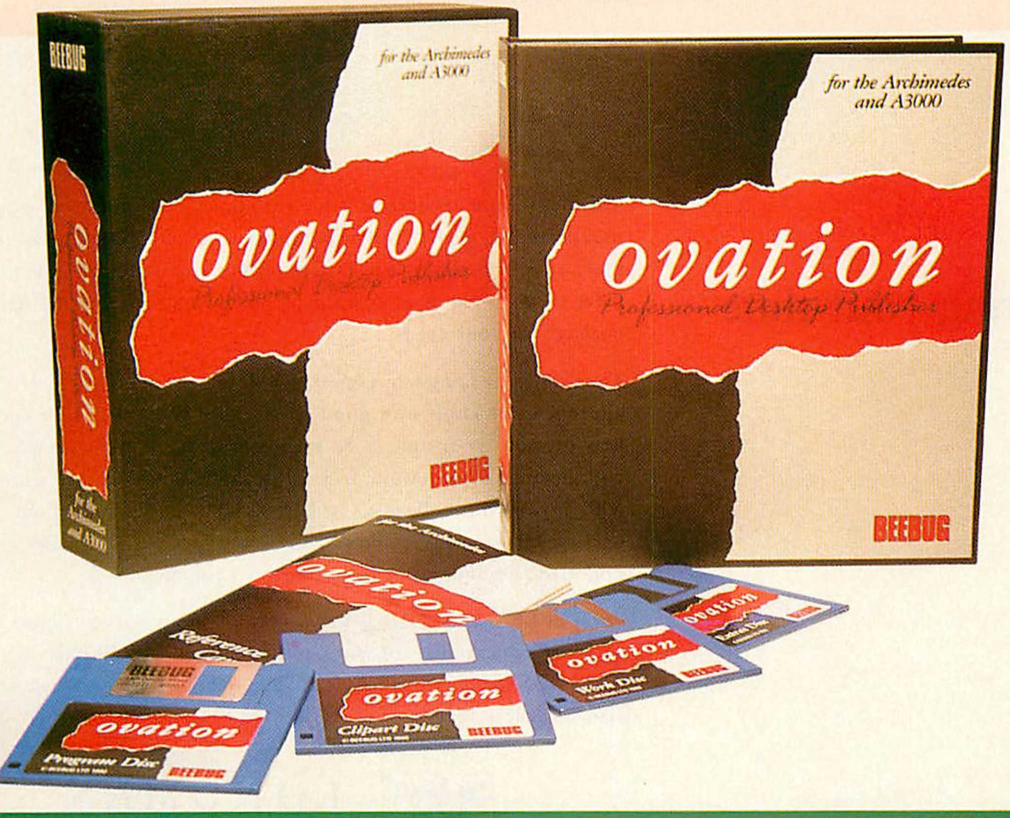
Children can construct Mottik models on the screen and view them in three dimensions.

Other Topologika applications being used at the workshop include the *Imagine* maths pack and *TinyDraw* and there are contributions from other software houses including *Spex* from Aspect and *Town Planner* from Northwest Semerc. Topologika is on fax/phone (0733) 244682.



Construct Mottick models on screen, thanks to Topologika

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Faster online computing

THE NEW Acorn Risc PC at last has a serial port which can communicate reliably at decent speeds, like 115,200 bits per second (bps).

Previous Acorn hardware was limited officially to 19,200bps, six times slower than the Risc PC, though The Serial Port does have an expansion card offering a pair of high-speed serial ports capable of 115,200bps.

The fact that Risc PCs can talk serially at 115.2Kbps means that, for the first time, users can seriously consider exploiting the benefits of the latest very high-speed online communications devices, like V.Fast modems and ISDN (integrated services digital networks) adapters, without having to add extra interface hardware first.

Burning white hot in the comms world at present is the Internet, a huge global interconnected mass of academic, commercial, public and private information and e-mail servers which has an estimated 30 million users and is growing incredibly fast (see the article on page 82).



The US Robotics Courier modem — fast Internet usage

New generation fast modems and ISDN connectivity are essential for power users to make the most of the Internet. V.Fast hardware, which has just been launched, includes a new version of the trusty US Robotics Courier modem priced £499 + VAT.

This follows rival launches from Hayes, Tricom and General Datacom earlier in the year.

US Robotics can be contacted on (0753) 811180 or fax (0753) 811191.

Developments updates

RISC DEVELOPMENTS has unveiled the latest incarnation of its *Sleuth* OCR package, and an improved version of *Ovation* DTP has been introduced, complete with a reduction in price.

Risc Developments' *Hearsay* comms package has also had an overhaul.

Sleuth 1.50 is now shipping. Improvements include an increased range of recognised fonts, and the addition of bold text recognition. However, there is still no support for italicised fonts.

Twain support has now been integrated into *Sleuth* so that scanners with the necessary Twain driver can be used to scan documents straight into *Sleuth* without the need to use a dedicated scanning application.

Risc Developments and its sister company Beebug are jointly promoting a scanner package including an A4 flat bed scanner, *Sleuth* OCR, David Pilling's *ImageMaster* scanner application, Twain and optional SCSI interface. The scanners on offer are Canon's compact IX-3010 mono or IX-4015 colour units.

Prices start at £479 + carriage + VAT. *Sleuth* 1.50 itself is priced at £59 + VAT and existing users can upgrade for £5 + 85p carriage + VAT by returning their original application disc.

Meanwhile, *Ovation* comes down in price to £69 + carriage + VAT and until August Risc Developments' *Thesaurus* will be bundled free of charge, along with the book *Getting into Ovation*.

Thirty-seat (secondary school) site licences are priced £375 + carriage + VAT and the 15-seat (primary) site licence is £210 + carriage + VAT. Speaking to *Acorn User*, *Hearsay* and *Ovation* author, David Pilling, reported that *Ovation* 1.41 works on Risc PC, though there are some minor cosmetic problems in new Risc PC screen modes. Version 1.42 has been fully sorted for the Risc PC.

Hearsay 2.18 works on the Risc PC without any major problems.

Version 2.19 adds Risc PC dedicated fast screen code for 16 and 32bpp screen modes, plus some assorted bug fixing and tweeking.

David also revealed that he is now working on an Internet version of *Hearsay*.

Details are sketchy at present and, indeed, David is keen to hear from Internet users for their views on this deve-lopment (e-mail david@pilling.demon.co.uk).

Risc Developments is on (0727) 843600 or fax (0727) 860263.

Sound of music

Solent Computer Products, the company now responsible for the marketing and development of the Oak Recorder 2 audio digitiser, has updated the Oak Recorder 2 software, *Soundlab*, for full Risc PC compatibility.

Sound samples can now be reproduced up to 20KHz. Both old and new samples will now sound better through the new *Soundlab* software.

Oak Recorder 2 remains £39.95 + £3 carriage +VAT. For more information, contact Sharron Fellows at Solent Computer Products on (0954) 789701.

Font-u-like

Dalmation Publications has produced the *DP Font Library*, a low cost collection of 101 Risc OS outline fonts. All the fonts are original designs produced from scratch on an Archimedes using available tools.

The *DP Font Library* is priced at just £19.95 including p&p and can be ordered from Dalmation Publications, 30 Henley Grove, Henleaze, Bristol, Avon, BS9 4EG.

Green Greeks

The west country school of King's college, Taunton, has unveiled the results of its Longman Logotron-sponsored trip to the Greek Island of Zakynthos in 1993.

Sixteen sixth formers assisted conservation groups in a project to protect the giant marine Loggerhead Turtle. A full multimedia presentation has been produced using Longman Logotron *Magpie* and *Pinpoint* applications.

Prizegivings

In the House of Commons on May 13th, Acorn's sales and marketing director, Mike O'Riordan, presented prizes to secondary school winners of the *Times Education Supplement* Newspaper day awards.

The majority of finalists used Acorn equipment , the winners being Churwell primary school in Leeds for *Churpy Times*.



Under pressure

WORK continues on the Vaughan Allanson & Essox pressure-sensitive graphics tablets and accompanying software to utilise it. The two key players in the area of photo retouching, Digital Arts' *Picture* and Spacetech's *PhotoDesk*, both support the Wacom tablets through the Essox driver for unparalleled brush control and feel.

An *ArtWorks* drawing module nearing completion, even in its pre-release state, enabled unusual and unique effects to be achieved. Artworks can be contacted on (0638) 578597

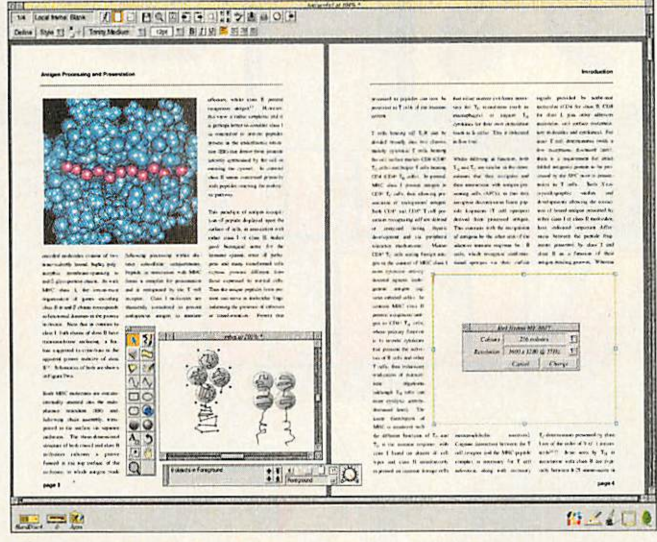


An *Artworks* tool will soon be available for use with the Essox graphics tablet

Big screen entertainment

SEVENTEEN inch monitors and larger have eluded the desktops of most users, not because of space but because of cost. Idek Iiyama lauched their Vision Master series of monitors to address this very issue.

For £667 + VAT (£555 to £600 + VAT street price) a 17in MF-8617 high-line rate monitor could be yours. Technical specification highlights include a 0.26 dot pitch (FST tube), 24.8-86KHz line rate, 50-120Hz refresh rate, 135MHz bandwidth and microprocessor control over 12 screen parameters including power saving.



Affordable high-resolution displays from Vision Master

At current street prices, the Idek could be a serious alternative to the 17in Phillips offered as an option with Risc PCs. But does the specification on paper impress in reality?

Well, the review model excelled in picture clarity, with the pixel sharpness marginally better than the Phillips, having resolutions above 1024 x 768.

Corner focusing was spot on. I managed to sustain a screen resolution of 1280 x 1024 at 81Hz and a still sharp 1600 x 1280 at 55 Hz.

This was pushing the VIDC20 in my very early Risc PC to its absolute limit, and without fine-tuning the screen timings for specific use with the Idek. The monitor definitely had enough left in it to support 1600 x 1200 at a flicker free 70Hz, VIDC allowing, which tallies with the manufacturer's claimed performance.

My only complaints were that the screen powered down without warning at 1280 x 1024 at 78Hz and above, and a very high-pitched buzzing at 1024 x 768 (75Hz), was present in that mode only.

Colour consistency was not quite up to Eizo standards, nor was the control over the RGB inputs. But in monitor country you generally pay for what you get.

The Idek represents incredible value – it outperforms the £1000 Phillips Brilliance, is good looking and easy to adjust physically (tilt and swivel) and electronically through its LCD visualised controls.

This safety-standard compliant 17in monitor really needs a closer look, especially if you are considering a new monitor or even a new computer.

The 21in Idek screens are also extremely well priced with the power assisted, remote controlled 'Diatron' (Mitsubishi's Trinitron clone) MF-9121, also claiming 92KHz line rates and 200MHz pixel rates, recommended at £1649 – about £1400 in the shops. The MF-8617 is priced at £667 + VAT (c.£585 + VAT, street price). For further information contact Idek Iiyama on (0438) 745482.

Draft proofs

Calligraph ((0223) 461143) has implemented a new draft printing option for its 1200-series printer drivers, designed for the quick proofing of graphics files. Complex graphics benchmarks enjoy an increase of 250% in rendering time.

Name change

Due to the name clash between the PD package *FineArt24* and the later development from Pineapple which was identically named, Pineapple has taken to releasing its painting application under the title of *Studio24*.

Important developments

DA's *Picture* is one quality graphics package already imported to the Acorn platform from the Atari, and there may be more to follow, though the details are under embargo at present.

What I can report is that as well as more bitmap conversions we are likely to see serious 3D graphics and rendering packages, painting and vector programs all making their way over from Atari.

Most interesting is a 3D application which is being converted for the higher-than-high-end Silicon Graphics' Irix operating system.

Spray Painting

In last April's issue, I promised a demo of David Llewellyn-Jones's *SprayCan* program on the cover disc.

In fact, David's let us put the complete package on the cover, so that you too can create files like the eye picture, which is also on the disc.

More details are on the cover disc pages.

You can contact the Graphics Page by writing to Jack Kreindler, at The Graphics Page, *Acorn User*, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP.



Faster and classier

AT A RECENT press briefing by US Robotics I was shown its latest modem products, with a new Courier model offering AT&T's V32 terbo and the Rockwell 28,800bps V.Fast Class standard being top of the range.

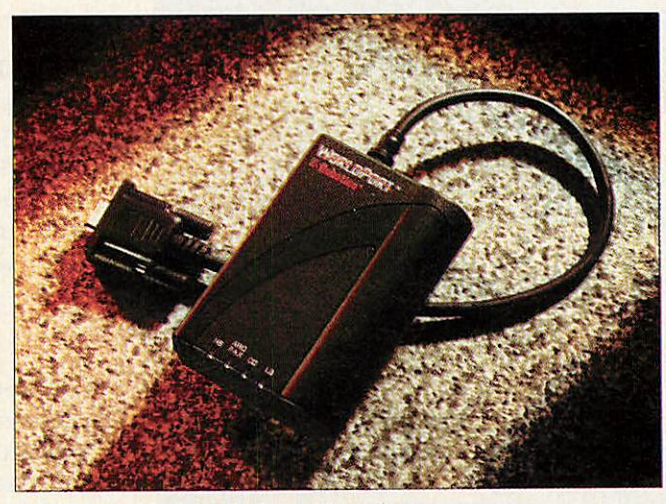
Although looking very similar to the current Dual Standard, internally it's a completely new design featuring flash memory allowing a free downloadable upgrade to V.34 when it's agreed – they're now talking about September.

The new Courier DS covers all speeds from 300-28,800 bps with V42bis compression and Class 2.0 Fax at a retail price of just £499 + VAT. I wonder what the Sysop price will be?

Their second new product is the WorldPort Dual Standard Cellular Fax pocket modem. This small sleek gun-metal grey-cased modem has an integral moulded 9-pin cable and internal battery, offering speeds up to V32 terbo.

This is as well as US Robotics' proprietary Cellular HST technology which can sustain data comms at up to 12,000 bps and cope with cell switching. The WorldPort DSCF also features V42bis/MNP5 compression and Class 2.0 Fax, and is supplied with *Quicklink II* data and Fax software.

This model is not yet priced, but the entry level version WorldPort 2496, intended for portable fax use at 9600bps and 2400bps data capability, will retail for an RRP of £199, so expect hefty discounts.



The WorldPort dual standard portable modem

Internet with ads

YOUR newsgroup session continues after this Word! The frightening truth is that the invasion of the Internet information highways by the advertising media is about to begin.

Two lawyers in Phoenix, Arizona have already started by posting an advertisement offering their services to thousands of Usenet newsgroups, the public conference areas read by an estimated 10 million Internet users.

The advert was 'spammed' into the areas without regard for the interests of the specific news groups, and the law firm's phone, fax and computer system was jammed for days afterwards by thousands of angry Usenet readers.

In spite of all the outcry, the ad was so successful that the husband-and-wife law team have started a new company called Cybersell so they can continue the operation.

In an attempt to control the situation, two of the larger Internet providers in the US have proposed a special 'market' area of Usenet where companies could place advertising and promotional material instead.

Cybersell has shunned this idea, saying that it would be 'too limiting'. Unfor-tunately they're right, because someone who is paying for every byte of data would not choose to access the special advertising areas.

All data transfer costs someone something, so would you be pleased at having to pay extra to read unsolicited advertising material arriving with your newsgroups?

Junk Usenet advertising is just as unacceptable as junk fax or junk mail, but it seems that advertising will pervade the information super-highways as inexorably as it has newspapers, radio, and TV.

This article was brought to you courtesy of *Acorn User* magazine, on your news stand now.

Why aye, spuddy!

SPUD'S Xanadu, affectionately known as Spuddy, is a network of Sun Workstations dedicated to providing a free mail and Usenet service for the UK and is run by Jamie Allen, with the help of other operators. Users can register for a personal login account, or use the BBS system. There's lots of freeware for downloading, online games to play and two-way access to Usenet newsgroups, as well as free access to a full unix shell to let you familiarise yourself with unix and compile your own programs.

As Spuddy's dial-up lines initially use 7-bit data, I recommend you use a VT100 or VT102 terminal emulation set to 8N1 with 'top bit filter' set.

The number to dial is (0203) 364436 and answer the login prompt with 'new' on your first call, and 'bbs' on your next. Enigmatic login names are expected and encouraged.

Powering down

I am sorry to report the closure of a bulletin board well-known to many BBS users — Edward Hobson's system, The Power House BBS.

Edward no longer has the time to maintain the BBS but will continue to read and contribute to Acorn message echoes. We wish him well.

Risc PC answers

Acorn has set up an e-mail account to deal with technical queries on the Risc PC range.

All questions sent to 'RiscPC. techquery@acorn.co.uk' and the replies to them will be compiled into a Q&A document available to Internet users.

Acorn's own ftp server holds information about the Risc PC as well as updates to Acorn applications and other software. ftp to 'ftp.acorn.co.uk' and select the 'pub/riscos' directory as a start.

HENSA/micros II

Since the closure of Albert Koelmans' Newcastle info-server, which allowed file requests by e-mail from a comprehensive list of software for Acorn 32-bit machines, attention has shifted to other archive sites such as the HENSA system at Lancaster University.

The existing machine at micros.hensa.ac.uk is still operational, but seems very sluggish. A new HENSA II trial machine can be accessed by telnet or ftp to'mic2.hensa.ac.uk'.

The 'micros/arch/riscos/*' directories contain over 500 applications, including most recent versions of Acorn Risc OS 3 applications.

Trouble-free sessions are not guaranteed, so user reports e-mailed to 'syspds@micros. hensa .ac.uk' are welcomed.

You can contact the Comms page by writing to: David Dade, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield, SK10 4NP or by e-mail to: DaviD@arcade.demon.co.uk, or by modem on Arcade BBS, User #2 - 081-654 2212 or 081-655 4412.



A quick rant

AT LEAST one Mac hack has objected to my comparison between *Publisher* and *Quark*. They also poured scorn on the Acorn system in general.

So just for the record, *Impression* isn't as polished as *Quark* but costs £400 less. *Quark* doesn't compile indexes or contents lists automatically and can't apply a style to anything smaller than a paragraph.

Now here's the real killer. System 7 doesn't support on-screen anti-aliasing of fonts.

So when you scale your documents to 50%, the text turns into little grey boxes showing where the text is supposed to be, and even at normal sizes some fonts look decidedly rough when displayed.

Our argument then turned to the relative merits of the PowerPC and after pointing out that keyboard, mouse, monitor and a 24-bit display card would set me back a further £650, the cheapest PowerPC at £1250 didn't look like such a bargain after all.

As for the new Mac's PC-emulating software, *SoftWindows*, it costs £100 more than the PC Card for the Arc, so enough said. Call me an old cynic, but with every day that passes the mantra of the Apple logo looks more and more like ingrained habit than common sense.



A picture is worth a thousand words eh? So what is the Dutch illustrator, Stefan Van Soldt, trying to tell us?

Real scanning at last?

TJ REPRODUCTIONS has recently acquired a desktop drum scanner. The dutch-built ScanView Scanmate Plus scanner is hooked up to a Risc PC and boasts 40Mb Ram and more storage space than is considered decent to print.

The scanner accepts negatives, transparencies and photographs in any size up to A4. The system offers both colour and greyscale scans up to 2,600 dpi optical.

TJ is also intending to offer a file replacement facility. This will offer OPI-type facilities to people who won't be buying the *Publisher* OPI supplement that Computer Concepts is releasing later this year.

In a similar manner to OPI, TJ will scan your image and keep a high-quality copy while sending you a highly JPEGed version.

This version will sacrifice detail in order to create a more manageably-sized file. When you return a document with the image in, TJ will replace the low-quality JPEG image with the original.

The scanner doesn't quite offer professional quality scans, but considering the cost of the huge scanning machines – some £250,000 – the £15,000 desktop solution provides more than adequate quality for all but the most specialised print jobs.

For more information TJ Reproductions can be contacted on 071-372 4430.

Hello, again

APOLOGIES for the lack of a proper introduction in last month's column. So in an attempt to make amends here goes.

I've been using Acorn machines for ten or so years and owned a Model B prior to purchasing an Archimedes when the machines were first released.

Circumstances occasionally require me to help code the odd game for consoles, although I supposedly work for a printing company as a general dogsbody. This means I get to work with Arcs, Macs and PCs, so I've got the best and worst of all possible worlds.

I try and use the Arc at every possible opportunity. Well wouldn't you, given the choice?

I must also apologise for the thin content of this month's column. Anyone who knows me will tell you that I'm stuck for words about as often as we get invaded by Martians, so don't get used to it.

If there's anything that you feel needs covering or if you object to, or agree with, any of my comments, please drop me a line or two, or even three if you've the time.

From here on, I'm going to try and explain some of the tools, concepts and methods involved in DTP and pre-press publishing. So next month there'll be a dissection of *PostScript* and its associated problems.

Anyway, there's a little green man talking to one of the garden gnomes, so I'm off.

All systems go

AB DICK was showing off the new Risc PC-based publishing systems at this years Northprint Show.

The show, which is held in Harrogate, attracts about 20,000 print and publishing professionals and covers the industry from pre-press through to printing, binding and distribution.

The AB Dick stand had a complete production line, with the Risc PC-based publishing system driving a digital typesetter and an advertising brochure actually being printed, collated and bound on the stand.

The publishing systems attracted a great deal of interest, so much so that a complete system was sold on the first day.

Systems start at £8234 + VAT for the Graphtex 300 system which includes a Risc PC with 8Mb Ram, 2Mb VRam, 420Mb hard drive, 21in monitor, ScanLight A4 Professional mono scanner, PostScript A3 laser printer, 35 EFF fonts, the MacFS filing system to read Apple Mac disc media, and finally three days of training.

The top-end Graphtex 400-C has a 40Mb Ram Risc PC, an Epson colour scanner, and Photo CD for £12,446 + VAT.

A comment gleaned from the Kodak stand hinted the kit was 'impressive' and that it was 'nice to see a British product doing well for a change.'

An Apple supplier commented that the Acorn solution was far better than he'd expected, although at least one Apple vendor branded the machines as 'a joke.'

It's good to see such open mindedness from the competition, even if it is the exception, rather than the rule.

See the news pages for some industry comments.

You can contact the DTP page by writing to: Steve Powell, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield, SK10 4NP

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...piano teacher ... not teach him ..., Richard ...ght m...

Last week the Express reported on the complaints of management of Edgeley branch was not aware of manager on December 10 to make the views of the

"The cage in which aluminium cans are stored was

SCHOOL CHILDREN PROVE THAT NEW BYPASS WILL DAMAGE THE LOCAL ENVIRONMENT

EXCLUSIVE

BY MATTHEW DAVIES

USING an innovative new program on their classroom computer children from St. Chad's School have shown town planners that a proposed new bypass would have a detrimental effect on their local environment.

The children surveyed the local area and fed details into their Topographer program, which allows them to look at the relevant area in 3D. They then added the new road along its proposed route and it became obvious that the road would not only affect an area renowned for its badger population but would also distract children in the classroom as they would be able to see traffic moving along the new road.

The children even went as far as to propose a new route for the road to the town planners. The proposed route would have a negligible impact on the area but still provide the much needed relief to existing roads.



A SERIES of sweeping proposals which would abolish free parking in district shopping centres, change some bin collections, increase lettings charges and scale down mileage claims by some council officers, have been announced by Labour.

In the first indication of their intentions si... seizing power jointly with the Conservati... party has produced a b... 1,000 ... servi...

● REDUCING mainten...

Other econ... departmental b... cutting scho... fees.

Th...

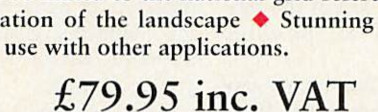
Topographer is a major application for the Geography curriculum which allows children (and teachers) to have lots of fun whilst learning all about maps, contour lines, valleys, rivers etc. In fact *Topographer* covers virtually all items found on a map.

The real break through with *Topographer* is its 3D section which allows you to convert a 2D map into a 3D model on screen. Imagine turning a set of flat contour lines on a 2D map into a 3D model which clearly shows the hill — no more cardboard cut out models or papier mache! You define where you look from, and what you look at.



Topographer also covers aspects of the IT and maths curriculum with its modelling capabilities. Just stop for a minute and think of the projects that you could do with *Topographer*. You could make a map of the local area with churches, pubs, woods etc. and then view it from various places. If there is a bypass proposed you could add it in to the existing landscape and see where it is visible from and what impact it is likely to have on the community. I'm sure you can think of a hundred and one topics.

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Datafile catalogue

DESPITE having one of the biggest and most detailed catalogue listings of all the PD libraries, the Datafile's catalogue software has not always been up to the standard of other libraries.

Arch Angel took the lead several years ago with the introduction of Binary Star's catalogue and ordering system which allowed you to choose the discs you wanted quickly and easily, while the program totalled up and recorded the order.

Unfortunately the program now looks a bit dated, but the Datafile's new catalogue release seems to have taken its place as the best library catalogue program available.

Last year a new desktop viewer by Dirk-Willem van Gulik was introduced on the catalogue discs, which simply allowed you to view and search the software listings.

Dirk has now completed the second stage of the software, which lets the user select a number of discs before the program calculates the cost and prints out an order form ready for dispatch.

Drag the disc and your ordering is done

Everything is accounted for by the software which can deal with DD or HD discs, postal charges for anywhere in the world, and VAT and subscription charges.

The really clever bit is the pick and mix system, which calculates an order for individual programs selected from different library discs by working out how many discs are required and adding this to any orders for standard discs. All this may sound complicated, but in actual fact it just makes life easier for the user. All you have to do is drag each disc or program from the catalogue onto the ordering window and the program will work out everything, outputting the order form to disc or your printer.

All the software is windows - based and runs in the desktop, making it very easy to use. The completed catalogue 19 is now available from the Datafile PD.

Trackconv

WITH an array of incompatible music formats in the PD scene, Chris Davies' *TrackConv* utility is an essential piece of software for all tracker fans.

The program can import Tracker, Sound Tracker, Digital Symphony, Coconizer and Teque Music modules and then convert and save out in any of those formats.

Conversion quality is high and full information is provided on modules being converted.

So to sum up, *TrackConv* is the best tool to convert all those Tracker and Digital Symphony mods to the Protracker standard, for superior playback on *Acorn User*'s *QTM* player. *Track Conv* is on disc STU1 from Five Star marketing.



Music made easy with *TrackConv*

Blib II

BLIB II is a special management system that makes the use of Basic libraries much simpler.

The program combines a set of over 200 procedures in library form with a full desktop-linking application.

Full documentation is provided and the system itself is easy to use.

Although C is usually regarded as the best choice for serious development work in the desktop, *Blib II* certainly makes Basic a good alternative for those who can't afford a commercial C compiler, and is well worth a look for anyone already using Basic libraries in their programs.

The routines provided cover most areas and are also well worth checking out, especially if you are programming the Wimp.

The *Blib II* application and library routines can be found on disc U34 from Five Star Marketing.

Backdrips

Anyone bored with the rather unimpressive Risc OS 3 pinboard should check out a little utility from Colin McEwan which automatically cycles through up to 48 different tiled backgrounds.

The time delay between each change and the backdrops to use are fully configurable, and the program only takes 64K of memory to run.

Dithering is used to good effect, but I would have liked to have seen some more original pictures. *BackDrips* is on cat 19 from the Datafile.

Viewpoint

With the biggest libraries on the market expanding at an alarming rate, yet still providing a good service, it seems that many of the smaller libraries that can't afford to advertise are losing out.

This doesn't appear to be a great thing for a section of the market that's been created by enthusiasts on a personal level.

Ominous indicators from the much larger Amiga scene, where PD is big business and a lot of the hobby element has been lost, are not a good sign.

Whether this trend will actually make much of an impact on the PD coder or the end user remains to be seen, but whatever the outcome, the loss of many of the smaller libraries can only be viewed with regret.

If you run a smaller library and want to have it featured on this page, please write to the address below. Publicity is the best way to make sure that your library gets a good reputation.

New subs disc

The Shareware disc, provided as part of the free package with each subscription to *Acorn User*, has been updated.

For more details, have a look at the subscription offer detailed on pages 112 and 113.

You can contact the PD page by writing to: Paul Wheatley, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP.




Spex upgrade

Product: Spex
Price: £99, Street £19.95 (full site licence)
Supplier: Aspex Software
Tel: (0822) 611060

THE 3D Environment Design program *Spex* has been around for some time and I for one have used it very successfully with Key Stage 3 students.

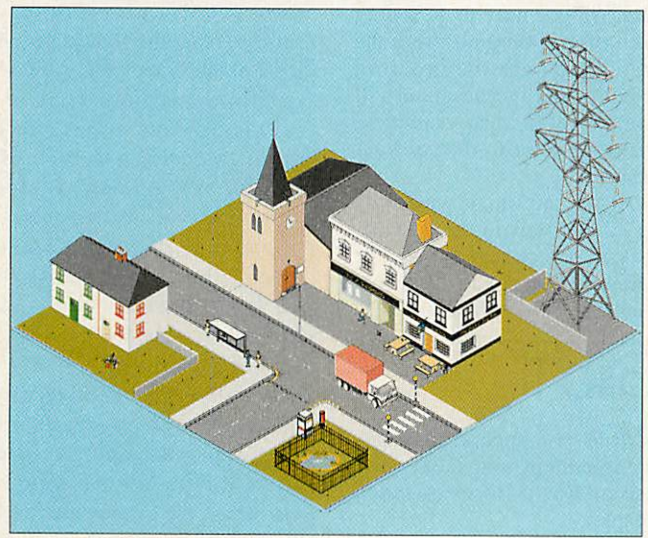
Very briefly, you design in 2D and the program renders your design in 3D. Files can be output in Spex format or in *Draw* format.

The pack comes with kitchen, bathroom, bedroom and living room environments and is a must for CDT. You can buy a fifth environment, *Street*, which adds further interest to an already outstanding program. *Street* requires the latest version of *Spex* (1.30), but the software will be upgraded free of charge.

As with the previous enviroments, the quality of the vector artwork in *Street* is excellent. I hope this release is the first of a series of new environments from Aspex.

Of course, if you can't wait for further releases, a valuable class project might be to design your own environment.

If anyone has a particular desire to take on such a project with a class, I would be very pleased to hear from them.


The new *Street* environment for use with *Spex*

Networking in school

THIS month, the major feature is networks and is, I believe, an almost definitive guide to Acorn networking – within the limits of the editorial pages available.

Thanks to all those who contributed their considerable expertise, in particular Colin Abery (SJ Research), Adrian Calcraft (RISC Developments), Martin Coulson (Atomwide), Martyn Gilbert (i-cubed), Ellis Hall (PEP Associates), Steve Holroyd (Hampshire Microtechnology Centre), Paul McKinnern (Cumana), Martin Neville-Smith (Acorn), Michael Ryan (XOB), Gary Stevenson (Oak Solutions) and Stephen Taylor (Digital Services).

How to spend money

NOT something that I have great trouble in doing, but a recent letter from 14-year old Chris Smith from Esher in Surrey posed the problem of how to spend £17,800 on Acorn Computer equipment for his school.

At present there are no Archimedes computers but plenty of printers, including a colour and a laser.

When schools were first provided with funds to buy computers back in the late 1970s, the trend was to spend something like 70% on hardware, 20% on software and 10% on training.

With hindsight that proved not to be the best strategy. Training should figure much higher, but as this money is for hardware and software only, my advice is to build a ten-station network using a Risc PC as the fileserver, at least one Risc PC as a station and nine 4Mb A3020s.

A CD-Rom could be added, although I would restrict that to a local station rather than trying to run it over the network as the cost of licences would eat too far into the budget.

The rest of the money should be spent on network licences for generic software such as DTP, databases, spreadsheets, graphing programs, a good art package, a CAD package and an assortment of about six CDs.

After cabling and network cards, that will leave about £400 to be spent on a further three or four good program licences, and about £50 for some PD material to build up the software library.

Paul Wheatley, I'm sure, would be able to give some advice there.

Software protection system from CCS

SOFTWARE houses have been forced to seriously apply themselves to the problem of how best to protect their considerable investments.

Computer Concepts uses a hardware key or 'dongle' on its products whilst others have opted for software protection.

Personally I think it's a shame that companies have had to take this route but, to be perfectly frank, we have only got ourselves to blame. I welcome software protection unless it hinders me – the legitimate user.

Some protection, the use of key discs for example, is a serious problem in the classroom. Creative Curriculum Software has come up with a solution which is about the best I've seen so far.

Basically, when you buy the program, the disc is uncopiable, must be registered and contains a number of credits.

The number of credits is equal to the number of copies of the program you are entitled to own.

If you own four credits and you copy the software onto a hard disc, then you have three credits left. Make another copy onto another hard disc and you're now left with two credits.

You will only be able to make one more copy before the program says you've run out of credits, but you can move software back onto the master disc at any time to restore a credit.

The program will run from a hard disc without the need for a key disc and can be freely moved around, but you will never be able to have more copies than you are entitled to own.

Software houses who are concerned about theft (and I guess that's all of you) should contact Creative Curriculum Software on (0422) 340524 who will be happy to licence the protection system to you.

CCS has written the protection software in such a way that it's no harder and no more time consuming to make multiple copies with protection as it was without protection.

This form of software protection benefits everyone and should be welcomed by network managers everywhere.

You can contact the Education Page by writing to Geoff Preston at Acorn User, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP by or e-Mail to GPreston@arcade.demon.co.uk.

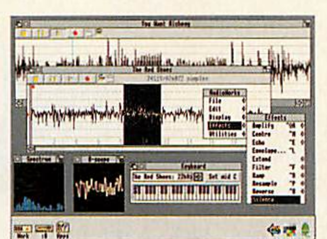


Eagle M2 — *soaring* to great heights

Eagle is the new do-it-all multimedia system for Acorn computers. It can handle a wide range of data types, combining the ability to capture sounds, still pictures and movies. The advanced hardware is accompanied by some of the best software available for manipulating data from all of these sources.

• Greyscale and full colour (8, 16 and 24 bit) *real-time* video digitiser. • ScanLight greyscale image processing software • Stereo audio capture and playback • AudioWorks audio processing software • Audio mixing of Eagle and computer sound with mixer software •Audio control software for linking arbitrary desktop events to any sound • MIDI in, out and thru (Acorn MIDI standard compatible) • Acorn !Replay compatible movie capture • Acorn !Replay movie compressing software • The amazing Eidos real-time movie capture software • !TakeTwo video application supports live video in a window on the desktop





"This superb interactive sound and vision card has set a new standard for others to chase... an essential creative powerhouse for the artistically inclined... it looks set to be one of the highlights of the year". **Acorn User.**

"Results obtained with it are supurb... Eagle does so much, so well, for such a modest outlay that it will take some beating. In short, Eagle comes highly recommended". **Archimedes World**

Price: £329 + £6 carriage + VAT (£386.57) including the Eidos software.

Consists of one standard size expansion card, suitable for all machines that accept this size expansion card, including the new Risc PC. RISC OS 3.1 and a minimum of 2 MBytes required (ARM3 and 4 MBytes for movie recording and sound output).

Further details are available from Computer Concepts on request.

Acorn Replay™



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Email: Info@CConcepts.co.uk

THE ACORN USER

Spray can

By David Llewellyn-Jones





On the graphics page of the April 1994 issue of *Acorn User*, we mentioned David's spray can painting program, which he wrote for his A-level art course. This month, we are pleased to be able to include the entire package on our cover disc.

SprayCan is a fun, easy-to-use painting package, which nonetheless can generate some subtle and beautiful pictures, as the 'eye' picture on the cover disc demonstrates.

It runs outside the desktop, and double-clicking on the *MakeSpray* application brings up a blank screen ready for you to spray onto.

Clicking with the Menu button toggles the menu on and off. You cannot spray when the menu is on screen. Both Select and Adjust spray to the screen, and you can assign different colours to each button. The spray density, size of spray and spray colour are all controlled from the menu.

On the left of the menu is the colour picker, showing all 256 colours available. Clicking on this with Select or Adjust assigns the chosen colour to that button.

In the centre of the menu at the bottom is an adjustable slider, which controls the spray density. The current colours for both Adjust and Select are displayed to the right of this, and the circle at the far end can be dragged to change the brush size.

Clicking on the 'power' button generates a very dense, large spray, useful for filling large areas with colour. The 'menu' button brings up a second menu, with options to save the picture, quit the program and issue a system command.

This menu also shows how much memory the program has left – watch this, as the program may crash if you run out of memory.

What the program actually saves is a file tracing the mouse movements, along with all the changes to brush settings. Apart from producing a file which is often smaller than a 256 colour screenshot, this has the pleasing side effect that you can watch your picture being redrawn before your very eyes.

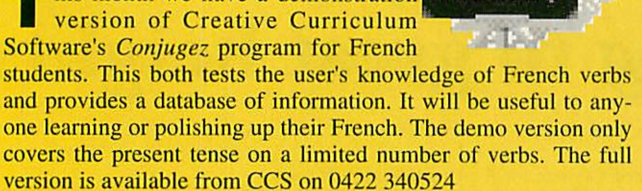
To do this, run *SprayCan*. This program installs itself on the icon bar, and will play back spray files. To load a spray file – filetype 044 – double-click on it or drag it to the *SprayCan* icon on the icon bar.

This will open a window showing information about the file. Clicking on the 'spray' icon in this window begins playback of the file.

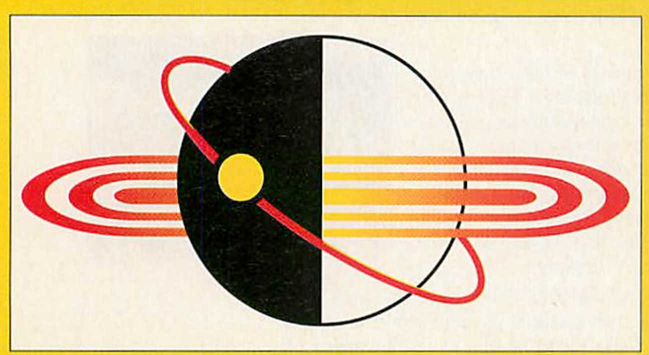
Playback can be stopped at any time by pressing a key. The picture can then be saved as a 256 colour sprite.

When you use the program, you will discover that David has put some effort into getting a realistic 'spray can' appearance. It is this that sets the program apart from programs with a more simplistic spray tool, such as *Paint*.

Education



This month we have a demonstration version of Creative Curriculum Software's *Conjugez* program for French students. This both tests the user's knowledge of French verbs and provides a database of information. It will be useful to anyone learning or polishing up their French. The demo version only covers the present tense on a limited number of verbs. The full version is available from CCS on 0422 340524



Nigel Gatherer's clip art column

By Nigel Gatherer

This month Nigel has provided a collection of graphic elements which can be used to jazz up an otherwise dull page of text. Some have specific uses – like the fork lift truck – while others are just general eye-catching generic graphic designs.Don't over use them.

Basic



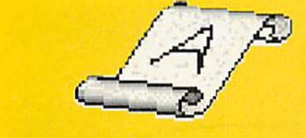
The last in the Basic tutorial series looks at reading from and writing to memory directly. As with last month, the contents of the *BasicProg* directory must be copied to another disc before the program is run, and having copied the files you must run the *SetVar* file which you have just copied.

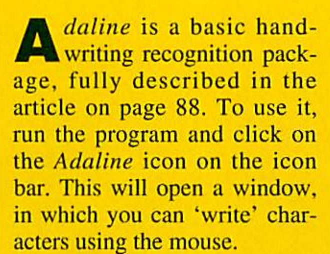
This month's listing 'scrambles' a file by loading it into memory, EORing it with a number in blocks of four bytes and then re-saving it. Running the program again restores the file. For more information see the article on page 91.

COVER DISC

Adeline

By Paul Thompson





Adaline is a basic handwriting recognition package, fully described in the article on page 88. To use it, run the program and click on the *Adaline* icon on the icon bar. This will open a window, in which you can 'write' characters using the mouse.

With the top 'pencil' tool selected, as it is when the window is opened, *Adaline* will attempt to guess each character when it believes that you have finished drawing it.

Adaline treats each separate line as a different character, unless they cross. For example, if you were writing an 'H', you would write one downstroke, then the cross stroke, then the other downstroke, all crossing each other.

If you were to write the two downstrokes first, *Adaline* would interpret them as separate letters.

Also, if you write two letters next to each other, *Adaline* will put its guesses for the two characters next to each other, so you can write whole words in this way.

Letters can be crossed out by using the erase tool – with the cross – and drawing through letters which you wish to be erased. The button below this with the 'T' toggles training on and off; see the article for details. The two arrow buttons below this switch between pages of letters, of which you can have up to 10.

The character definition set stored within *Adaline* is for upper case letters. There is a file in the same directory as *Adaline* containing definitions for lower case letters.

To use these, the *Letters* file within *Adaline* must be replaced by the *Lower case* file, which should be renamed to *Letters*. Make sure that you keep a copy of the original *Letters* file. Note that while you will now be able to input lower case letters, *Adaline* will still print them in upper case.

For more information, see the article on page 88.

*INFO



Ever wondered which of your files would win in hand-to-hand combat? Well, we have just the program for you in this month's *INFO, along with the usual collection of utilities, modules, and the inevitable Mandelbrot sets.

Networking utilities

To tie in with the main *Acorn User* feature on networking, this month's cover disc has a few helpful utilities for network managers.

Datafiles contains a set of templates in three common formats to enable a database of users to be easily set up.

Tickle contains a file called *CopyScrap* which, when used with the *NetManage* software, copies a *Scrap* directory to multiple user areas. *UserForm* has a *Draw* file containing a standard application form for a user area account.

The *Internet* directory will be useful to anyone attempting to get connected to Internet using the PD *KA9Q* application. The directory contains a set of *Draw* files explaining how to set up the configuration of the various programs and a program – *SetDemon* – which will take some of the pain out of configuring *KA9Q* for your own use.

Running the program installs the SetDemon icon on the icon bar which, when clicked on, brings up a configuration window. Enter the details of your setup here and click on the 'Save in KA9Q' icon.

This will save *AutoExec* and *Config* files inside the *KA9Q* application, overwriting any existing files. Note that this program *only* works with *KA9Q* version 1.31b, as the configuration files have a different format in earlier versions.

If *KA9Q* has not been seen by the filer, you will only be able to save your configuration internally.

Send us your software!

At *Acorn User* we are very keen to publish reader's programs on the cover disc. Ideally we are looking for original ideas and programs which run in the Risc OS environment, but we will consider all submissions.

Under the unique *Acorn User* PD scheme, you retain all publishing rights to your programs, leaving you free to develop your ideas further, or release your software into the Public Domain.

The only condition is that you must not publish the software anywhere else for three months after it appears on the cover disc. After this period you can do what you want – and of course we'll pay you for letting us publish your work, so you can't lose.

If you want to send us any programs, please send a disc and a covering letter to: Acorn User Cover Disc, Acorn User, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP. If possible, instructions for using the programs should be on a text file on the disc, and please enclose an SAE for swift turnaround.

We look forward to hearing from you.

Disc problems?

Our cover discs are thoroughly tested at each stage of production, but one or two faulty discs may slip through. If you suspect that your disc is faulty, do the following to check it:

1. Put the disc in your drive.
2. Click Menu (the middle mouse button) over your floppy disc drive icon, on the left of the iconbar.
3. Click on the Verify option, and a window will pop up, showing the verification process.

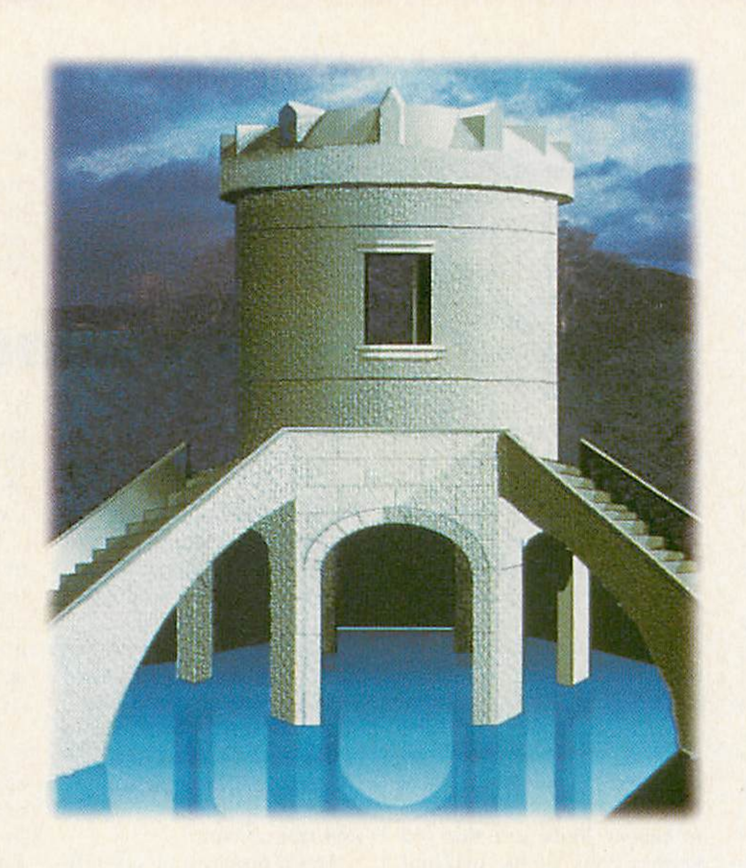
If verification finishes with no errors (the window says 'Disc verified'), then your disc is not physically faulty and you should contact the editorial office at the address given on the contents page. However, if an error is reported, your disc is faulty and it will be replaced free of charge. Send it with your name and address to: PC Wise Ltd, Dowlais Top Business Park, Dowlais, Merthr Tydfil, Mid Glamorgan CF48 2YY

Most of the programs on the *Acorn User* cover disc are compatible with both Risc OS 2 and Risc OS 3. However the discs are only tested on the new system, and we cannot guarantee that everything will work with the old system.

Our advice is to upgrade as soon as possible, as compatability problems will occur more often as software developers make use of the new operating system.



TOWERING ABOVE THE REST



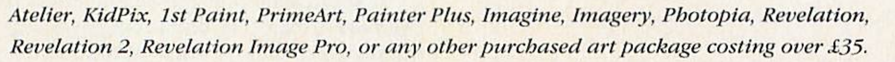
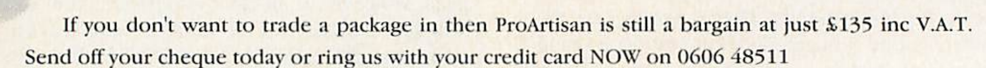
Up to 50% Discount





Don't take our word for it see the reviews and previews – ProArtisan 2 has been completely rewritten. And just to show how good we think it is we are making you a special offer until 31st December 1993. Send us your program disk from **Artisan, Artisan 2** or **ProArtisan** with a cheque for £67.50 and we will send you a full **ProArtisan 2** pack – that's a full **50% trade in allowance** as a thank you for supporting Clares in the past.

We haven't forgotten the rest of you who have not bought a Clares art package in the past. We are also offering you a special discount price of £87.50 if you return your program disc from one of the following:

Atelier, KidPix, 1st Paint, PrimeArt, Painter Plus, Imagine, Imagery, Photopia, Revelation, Revelation 2, Revelation Image Pro, or any other purchased art package costing over £35.



If you don't want to trade a package in then ProArtisan is still a bargain at just £135 inc V.A.T. Send off your cheque today or ring us with your credit card NOW on 0606 48511





We accept Access and Visa

Clares Micro Supplies, 98 Middlewich Road, Rudheath, Northwich, Cheshire CW9 7DA. Telephone: 0606 48511 Fax No: 0606 48512

TopicArt

Single disc clipart containing approx. 50 high quality draw format clip art images, each on a single subject. Comes with mono reference sheet. 12 subjects are available now. Please specify when ordering. Site licences are £16+VAT per disc, please ring for further details.



TopicArt9 - Dinosaurs

Subjects available
1 - General
2 - Transport
3 - Costumes
4 - Entertainment
5 - Bugs 2 Slugs
6 - Road Signs
7 - Sports Equip
8 - Sports Figures
9 - Dinosaurs
10 - Symbols
11 - Tools

£8 + VAT per disc

TopicArt catalogue now available. £1.50 Inc VAT & p+p (cheques only)

Buy 4 TopicArt discs get one free
not incl SpecialArt



TopicArt12 - AnimalsGB

TopicArt4 Entertainment

SpecialArt (Xmas or Signs) £20+VAT (each)

Special editions of TopicArt consisting of a minimum of 4 discs full of clipart





Training £50+VAT

RiscOS Computing For Beginners

Although Acorn RiscOS computers are the easiest to use, it is essential for even the most basic user to understand the fundamental principles, some of which are rather difficult to learn. Once mastered the computer will be able to be used efficiently and to its maximum potential.

This friendly informal one day course, held at our premises, is designed to provide you with these essential skills enabling you to work wonders with your Acorn computer. Topics covered include optimising your computer set up, running/using applications, understanding computer jargon, using printers, managing files, troubleshooting, expanding your computer, plus many more. Ring for details of special introductory offers and dates.



Hard Discs

A5000/RiscPC 2nd Internal Drive

210Mb IDE 14ms Cache (~1Mb/s)	£179
340Mb IDE 14ms Cache (~1.2Mb/s)	£239
420Mb IDE 14ms Cache (~1.5Mb/s)	£279
540Mb IDE 12ms Cache (~1.5Mb/s)	£399

The above include all cables, screws and instructions. All the above drives are Connor as used in the RiscPC

A300/A400 Series Internal (IDE)

210Mb 14ms Cache (~1Mb/s)	£259
340Mb 14ms Cache (~1.2Mb/s)	£309
420Mb 14ms Cache (~1.5Mb/s)	£359
540Mb 12ms Cache (~1.5Mb/s)	£479

The above include all cables, screws and instructions. Add £79 for ext case and/or £15 for A3000 podule case. All the above drives are Connor as used in the RiscPC

A3000 HCCS Int IDE HardCards

20Mb + User Port	£159
80Mb + User Port	£229

For other storage devices please refer to Hard disc/Syquest section below.

QuickTile v1.01 £25+VAT



Up until now it has only been possible to print posters from Draw & Sprite files. Now with QuickTile you can create posters from ANY RISCOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references.

Requires RISCOS 3.10 or later. Send v1.00 disc back for free upgrade. Upgrade from Tiler for £15+VAT

Hardware, Software & Books (All prices exclude VAT)

New RiscPC 600

Ring now for special deals. 0% and low finance avail.

We operate Acorn Assist for teachers & academics

RiscPC 2MHD210 £1199
ARM610, 2Mb DRAM, 210MbHD, HD Floppy, AKF60 Monitor.

RiscPC 5MHD210 £1299
ARM610, 4Mb DRAM, 1Mb VRAM, 210Mb HD, HD floppy, AKF60 Monitor

RiscPC 9MHD420 £1599
ARM610, 8Mb DRAM, 1Mb VRAM, 420Mb HD, HD floppy, AKF60 Monitor
Add £400 for 17" AKF85 Monitor

RiscPC Upgrades

4Mb Simm RAM	£125
8Mb Simm RAM	£250
16Mb Simm RAM	£500
32Mb Simm RAM	£1000
1Mb VRAM	£129
2Mb VRAM	£149
1 to 2Mb VRAM Upgrade (exchange)	£119
Connor 210Mb Hard Drive	£179
Connor 420Mb Hard Drive	£279
486 PC Upgrade (available ~Oct 94)	£199
2nd Slice Case Upgrade	£99
Acorn Access for RiscPC	£119
Ethernet Interface Card	£99
Econet Interface Card	£49

A Series

A3010 Action Pack 1Mb RAM	£315
Above includes Lotus Turbo Challenge II	
A3010 Learning Curve (No Monitor)	£400
A3020 2MFD/AKF40 System	£660
A3020 2MHD60/AKF40 System	£800
A4000 2MHD80/AKF40 System	£830

Add £43 for AKF52 MultiScan Mon.
Add £107 for AKF50 0.28dp Monitor
For A4000 only add £250 for 1Mb 386PC card and £450 for 4Mb 486PC card
(Above excludes A3010 computers)

Learning Curve £40

Includes Acorn Advance & PC Emulator & demos of Applications & Games

Home Office £85

Includes EasiWriter2, DataPower, PipeDream4, PC Emulator & demos

The above software packs are available with any of the above computers except A3010. They are not available separately.

Portable Computers

Acorn Pocket Book	£169
Psion 3 (256k)	£175
Psion 3a (512k)	£249
A-Link for Pocket Book or Psion 3/3a	£51
A4 Portable 4MHD60	£1599

Monitors

Acorn AKF52 14" 0.39dp MultiScan	£250
Acorn AKF50 14" 0.28dp MultiScan	£310
Acorn AKF60 14" 0.28dp MultiScan	£325
Acorn AKF80 17" 0.28dp MultiScan	£999
Microvitec Cub Scan 1440 (3yr warr)	£325

Hardware Upgrades

ARM3 (25MHz, Inc FPA socket)	£139
Joystick Interface (all m/c's)	£28
Midi Expansion Card	£65
Powerpad (dual) (Gamesware)	£34
Scanlight Video 256	£199
ScanLight Professional	£549
Vision Colour Digitiser	Int £99/Ext £112
Hi-Vision Digitiser A5000	£149
Vision upgrades	Mono-Col £70 Col-Hi £60 Mono-Hi £120

RAM Upgrades

A3000 Up to	2Mb £55/4Mb £129
A3010	2Mb £45 / 2-4Mb £100 / 1-4Mb £145
A3020/A4000 Up to 4Mb	£85
A5000 Up to	4Mb £85 / 8Mb £279
A400 RAM	£40 per Mb
A300-A400 8Mb RAM	£279

Hard Discs/Syquest

The following are complete systems.

A3010 HCCS Hard Disc Multi-Podule	
20Mb + User Port	£215
80Mb + User Port	£299
SCSI Archimedes Internal	
127Mb 17ms Cache	£319
210Mb 15ms Cache	£409
Syquest Removable Hard Discs (No card)	
IDE 105Mb Internal for A5000/RiscPC	£295
SCSI 105Mb External for all machines	£349
105Mb Syquest Cartridges	£55

CD-ROM Drives

Sony CD-ROM 300kb/s caddy loader	£175
Includes External case, PSU & one caddy.	
Toshiba External caddy loading CD-ROM 330kb/s with 200ms access time.	£399

The above drives exclude SCSI Card

Ink Jet Refills

Single Refills (req an orig cartr.)	£7
Twin Refills (req an orig cartr.)	£12
125ml / 400ml Cleaning Kit	£4 / £10

These do-it-yourself refills can be used with any printer where the head and ink reservoir are combined. Please do not send empty cartridges. Note that colour quality may not be 100% from a black cartridge refilled with another colour. We cannot guarantee against dried up cartridges and/or blocked nozzles. If you want 100% results only buy original cartridges or buy a colour printer!

RiscOS 3.1 Upgrades

A300/A440 Series	£97.88
A400/1, A3000, A540 Series	£75.75
Bulk Pack of ten upgrades	£339.00

Please add £4 (Inc VAT) carriage to above

Remember Carriage is free on most items

Printers (Inc Cable)

Canon BJ-10sx	£155
Canon BJ-10 Sheet Feeder	£50
Canon BJ-200	£230
Canon BJ-230	£280
Canon BJC-600	£445
Canon BJC-800 Turbo	£1200
HP LaserJet 4L (300dpi)	£500

Add £35 to above printers for TurboDriver

Printer Consumables

BJ-10 Ink Cartridge (BC-01)	£18/£19
BJ-200 Ink Cartridge (BC-02)	£18/£19
BJ-300 Ink Cartridge (BJI-642)	£17
BJ-600 Black Cartr. (BJI-201)	£8
BJ-600 Colour Cartr. (BJI-201)	£9
BJ-800 Black Cartr. (BJI-643)	£18
BJ-800 Colour Cartr. (BJI-643)	£21
DeskJet500 Mono/Col Cartr.	£23/£24
Swift24 Mono/Col Ribbon ea.	£7/£15

Books (No VAT)

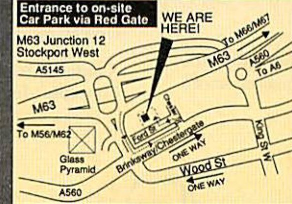
Acorn RISCOS3 PRM's	£99.00
Add £7+VAT carriage for PRM's	
Acorn BBC Basic VI Guide	£19.95
Acorn AASM Manual	£25.00
Acorn ANSI C v4 Manual	£25.00
ArtWorks Made Easy (Dabs)	£14.95
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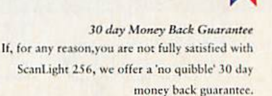
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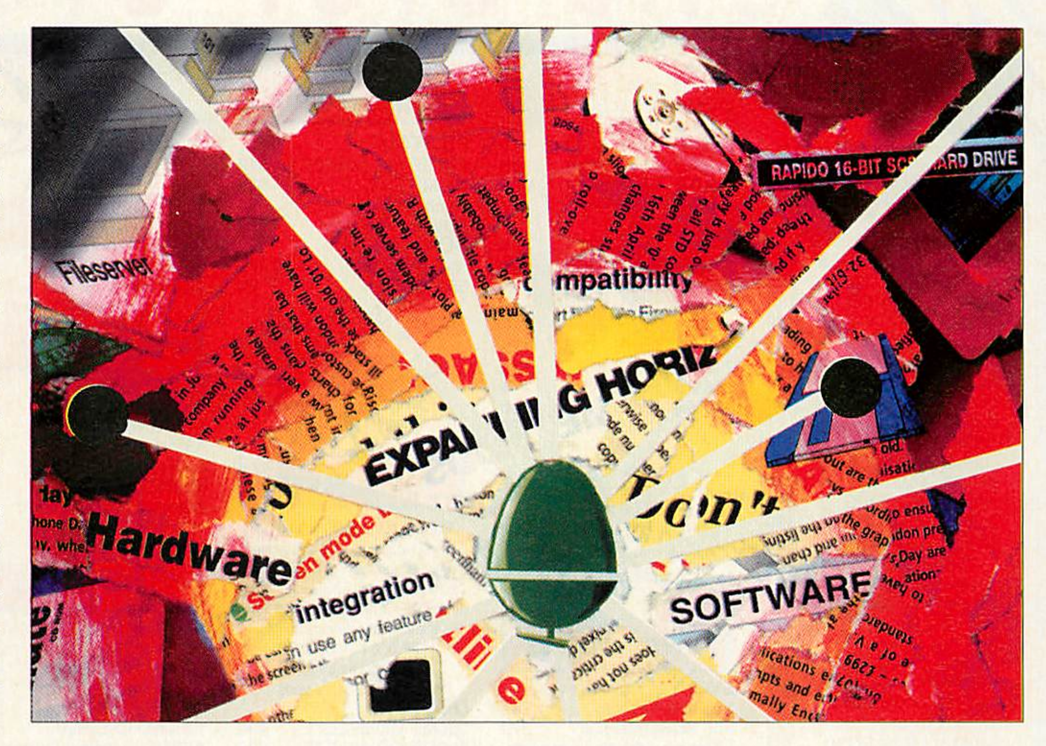




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Linking up

In this special networking section, Geoff Preston explains why networking is so vital to education



I've been involved with computers in education in one form or another for about 15 years. For at least half of that time I've listened to a great number of people telling me I should network the computers, but until recently I resisted because I felt that a network could well create more problems than it was likely to solve.

My first computer room was fitted with ten stand-alone BBC B computers, each with a disc drive. Controlling all the floppy discs, I found, was not a problem.

I had a number of sets of ten discs, each containing the software needed for each lesson. I also had a number of class sets of discs onto which students saved their work.

Each computer was in turn numbered and the discs were handed out at the start of each lesson. The only proviso was that each student had to sit in the same place each week.

I operated that system quite successfully throughout the life of the BBC computers and when I moved to a new school and chose to equip the computer room with Archimedes computers, I continued the same practice until programs got so large that a lessons' worth of software would no longer fit onto a single disc.

Networking was the only sensible solution but I felt Econet was not feasible because it was too slow for moving large programs.

Enter Ethernet

About two years ago a mutual friend introduced me to Martin Neville-Smith of Acorn Computers. Martin was responsible for developing networking on Acorn computers using Ethernet technology, and he lent me a couple of network cards and I did some testing using just two computers – one file server and one station.

The test worked quite well, although some aspects of it were dreadfully slow. However, I was satisfied that this was the basis of a working system and so went about building a network.

Applications that save their files as 'application' directories (*Impression* up to 2.19, *Masterfile*, *Spex*) are very slow to open. The problem with *Impression* has now been solved because later versions can save work as a single file, but there are still new programs coming onto the market which save files as applications. As far as I'm concerned, these are incompatible with the network.

The main bottlenecks are at the start of each lesson when everyone is logging on and loading their work, and at the end when people are saving and printing. For this reason, I no longer have students lining up outside the room at the start of each lesson, instead they come in and log on as soon as they arrive.

As far as network printing with a laser printer and students is concerned, beware. After using it for a week, several rain forests had passed through the printer. At this point I decided to place a few restrictions on its use.

Upgrading

Some software is so disc-intensive, that running several copies simultaneously over a network will slow everything down to a point where it almost grinds to a halt. Many databases, for example, save the file after a record has been altered.

When running some data-files on 1Mb or 2Mb computers, the disc is accessed between each record even when just browsing. This will not work with a class of 20 students engaged in the same activity.

Also, when changing to a network, it is advisable to check the terms and conditions of the software licensing agreements.

Most software that runs on stand-alone machines will run over the network, but not necessarily legally.

Some companies make a distinction between site licence and network licence. Watch out also for the site licence which has a limit on the number of copies run simultaneously.

Conclusion

My advice to anyone considering networking, is to go for it. In the early days on Level 4, there were some frightening moments but the world has changed a great deal since then.

The disadvantages pale into insignificance when compared to the very real benefits like easier storage of students' work, security of work, ease of access to large numbers of applications, communication between users and the ability to be able to create a piece of work in one place and continue it elsewhere.

Fileserver and client-end software will continue to improve and will, without doubt, get much faster.

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It's optional

Choosing the right network for your computer can be a confusing task. We run through the best, in terms of equipment and operation

There are several network systems available from several companies. All of these are Ethernet solutions except where stated otherwise, and all systems require circuit boards (called expansion cards) to be installed into each computer.

When ordering cards, you must specify which computer each card is for. In general, all of these solutions require 32-bit computers with Risc OS 3 (version 3.10 or later), most require 2Mb of Ram, but in any case I would recommend at least 2Mb and preferably 4Mb in each computer.

Acorn Access

This is a peer-to-peer system and is about the simplest type of network. Acorn has aimed Access squarely at primary schools and first-time network buyers, and has made it so simple to install that anyone with a couple of hours and a screwdriver could do it. The installation manual is just one page long!

To create an Access network, all you need is a minimum of two computers (of which at least one must contain a hard disc), and one Access pack for each computer.

Each Access pack contains an Ethernet card which is to be fitted inside each computer, a disc with some utilities, two two-metre leads with a BNC connector on each end, a BNC T-adaptor, an in-line connector and a terminator.

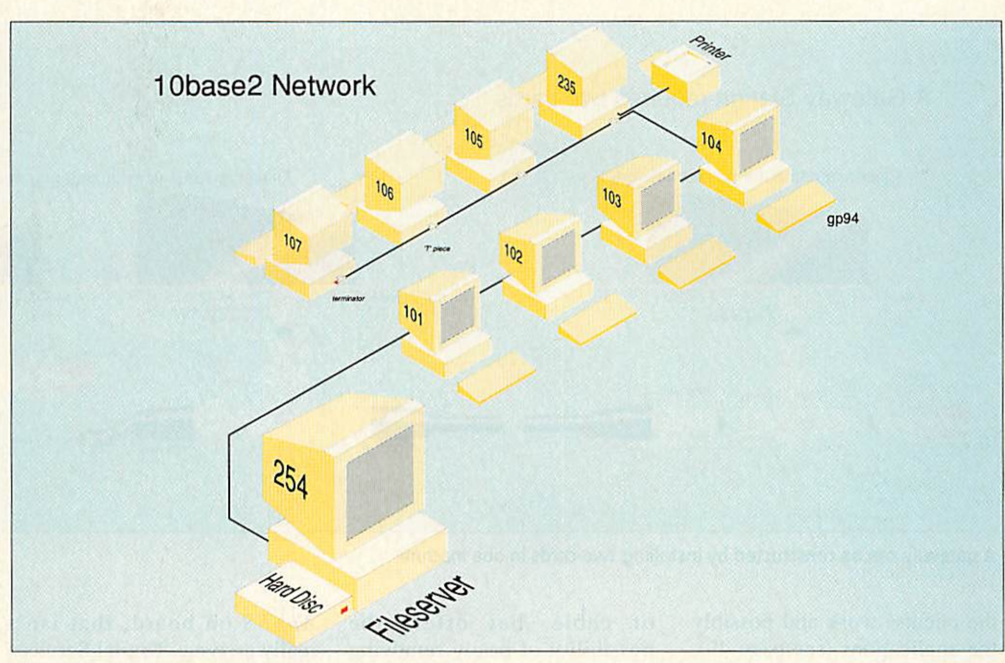


Figure 1, showing a daisy-chained network

Peer-to-peer network (Acorn Access)

Network Card
BNC connector in back of network card
gp94
Terminator
'T' Piece
Drop Lead
to next computer

Linking computers together using Acorn Access

The Access network is in the form of one continuous cable run with a terminator on each end. There can be no branches or spurs and the network must have exactly two ends.

Computers may be sited anywhere in a building and longer drop leads can be purchased if necessary, as long as the total length of the cable run is no more than 185 metres.

Each computer on the network will be able to share all the hard discs (or as many as you specify) and all of the printers.

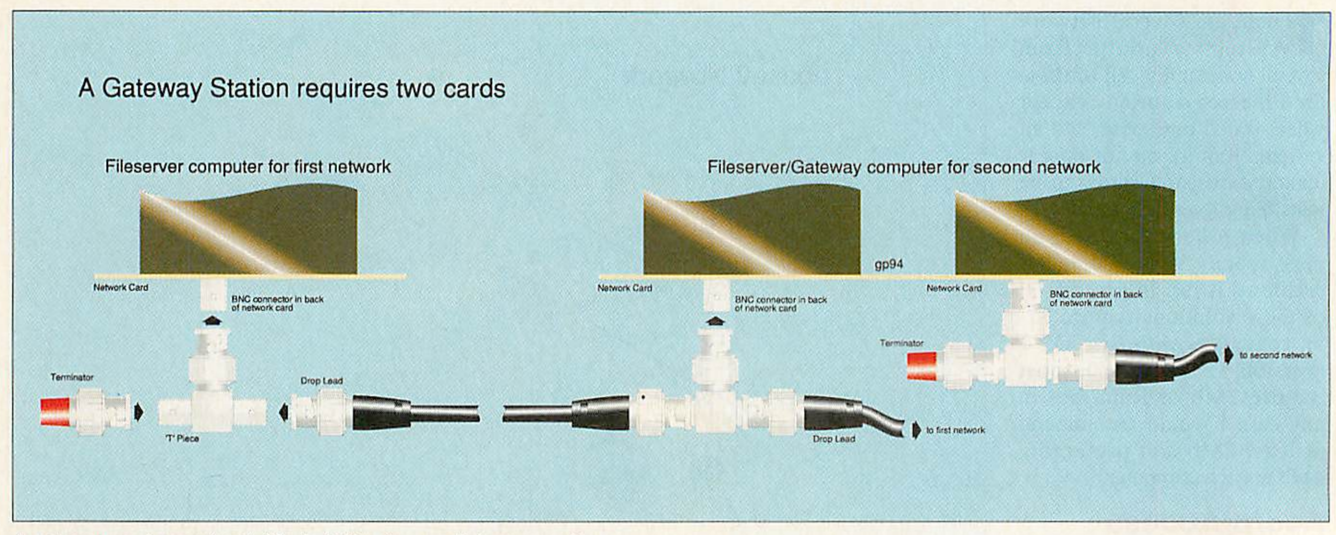
One restriction, however, is that each printer must be connected to a computer which is fitted with a hard disc. Risc Developments also supplies a card with the Access software on board which is compatible in every respect.

Level 4 (AUN version)

In keeping with Acorn's policy of backward compatibility, AUN will support both Econet and Ethernet computers on the same system.

However, Archimedes programs are too large for Econet and would be too slow. If you're creating a network from scratch then Econet should not be considered.

This is a true network, in the sense that all computers communicate with at least one fileserver which contains a hard disc onto which is stored



A gateway can be constructed by installing two cards in one machine

the clients' work and possibly the applications (see page 49). Client areas are secured by a password, which is not the case with Access.

Although a Level 4 Network could theoretically be installed by a novice, and should be only slightly harder to build than Access, it is fraught with difficulties and is probably best left to the professionals.

Like Access, you have to fit network cards into the computers, but they do not at present come in a neat little box with an assortment of bits 'n' bobs in the form of a kit.

You'll need to buy the cards from one place, the cable, connectors and T-pieces from another place and the software from yet another place. This is fine, until it goes wrong and you'll find everyone blaming everyone else's products.

To anyone thinking of installing a full network, I strongly suggest that you do not take it on yourself, and that the installers you employ know about networks and Ethernet and Acorn computers. Two out of three is no good.

There are several possible network 'layouts', but the simplest implementation is where the computers are 'daisy-chained' as shown in figure 1.

This is the system most schools will opt for but an alternative is the so-called 'twisted-pair', where each client station is connected to a device called a hub.

This system, shown in figure 2, is usually more expensive as it can use a lot of cable, but offers the possibility of easily removing computers from the system without disrupting the whole network.

It's also a better proposition if small clusters of computers are to be distributed around the building, or between two or more buildings.

Ethernet cards

The Ethernet cards currently available are made by Ant Ltd (available from Atomwide), Digital Services, i-cubed, Oak Solutions and Risc Developments.

I expect I'll get five people on the phone after reading my next comment, but here goes: frankly, I don't think there's much to pick between any of them. It seems to me there are pros and cons with all.

At this stage I feel I must declare that I am a beta-tester for i-cubed, whose cards have *AppFS* on board (see page 49) in flash Rom, so it can be very easily updated from disc, although I have to say I've had three cards which failed after a software upgrade.

Ant Ltd, Risc Developments and Digital Services are four-layer boards which are more expensive to produce, but the retail prices are about the same and appear to be favoured by Acorn.

The Ant card does not have flash Rom, so upgrades are potentially harder because the machine has to be opened, and more expensive because you have to buy another EPROM.

But, as Ant cards don't have third-party programs like *AppFS* on board, that isn't really an issue. Digital Services has the client end of *NetGain* on board (see page 49) and it also has a system for password protecting CMOS Ram which will even resist a full reset.

Risc Developments' board has a 64K buffer so can run faster, and can be supplied with *AppFS* client code on EPROM which will be upgraded free of charge if the old EPROM is returned.

Oak Solutions' board is AUN-compatible but it's really designed for Oak's own ClassNet.

The boards all cost much the same, and if you buy a lot (say 30 or more) then the prices come down by a similar amount. Take your choice – flip a coin?

The one piece of advice I will offer is don't mix cards on the same network. All manufacturers will claim that their cards work with all the others, but I think it would be tempting providence.

The cards you'll probably end up with will be the ones the installer chooses to fit. Of the five, only i-cubed do not install networks, preferring to have a string of dealers around the country, like Alsystems of Hampshire.

Some of the above-mentioned cards are variations on a theme: here we take a look at the differences.

ClassNet by Oak Solutions

Although this card is slightly more expensive than the other Ethernet cards, it is designed to run both Level 4 software (although there isn't much point in buying these cards if that's your intention) and Oak's own network solution: ClassNet.

Oak claims this is faster than Acorn's product and all software that runs on Level 4 should run on Class Net, although I haven't tested this myself.

Included on the card is the client end of *ClassShare*, Oak's application server. A fileserver version of the card is also available which carries the server part of the *ClassShare* application.

Oak also produces *ClassRom*, a hard disc management program which enables (amongst other things) hard discs on the system to be updated automatically. Like *ClassShare*, it can reside on the ClassNet card.

Disc Sharer by Oak Solutions

This is a peer-to-peer network rather like Acorn Access. Disc Sharer is a system for sharing resources and the program allows parts of any hard disc on the system to been seen by all computers.

Similarly, all printers on the system can be accessed by all computers. This is a simple but effe-ctive solution for schools that want the benefits of shared re-sources but don't feel they are ready to manage a full net-work with all that it entails.

Nexus Junior by SJ Research

Nexus Junior is a brilliantly

simple system that is ideal for primary schools, or for schools who think their IT requirements will 'outgrow' the system.

It's a star network, which basically means that computers are linked to a central hub, and Nexus Junior effectively provides all computers with read-only access to a hard disc.

If any work has to be saved, floppies or local hard discs will be required.

The basic kit costs £499 and will give you everything you need to connect four computers, one of which must have a hard disc and at least 2Mb of memory.

Shared printing can also be added for a further £50. Additional injections of cash will add two computers to the system for every £299 spent.

The network can be increased in this way up to a maximum of ten computers, but by that time the computer with the hard disc will be working overtime and so...

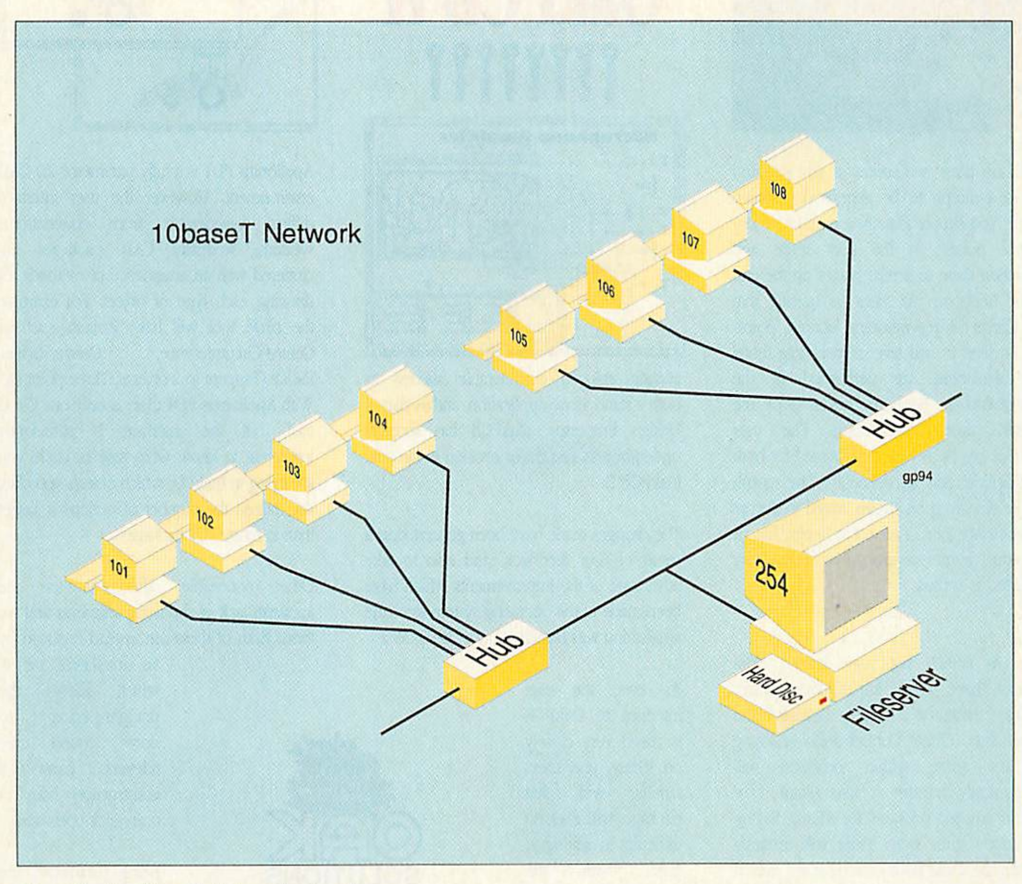


Figure 2, showing a hub-based network

Nexus Disc Sharer by SJ Research

... a dedicated disc sharer can be added, housing all of the network software and a hard disc up to 480 Mb.

This will allow users to save work on an area of the hard disc which is assigned to each computer.

A word of caution here as there is no area security, so anyone using a particular computer will have unlimited access to everybody else's work which was also saved on the same computer.

The idea really is to provide temporary workspace, the contents of which would be transferred to another more secure medium.

Even so, I would feel uneasy about such a system in a secondary school so...

Nexus Network by SJ Research

... the software can be upgraded to full networking specifications including private user areas, passwords and station to station communication.

Each star cluster can have a maximum of twelve computers, but the stars can be connected to give (theoretically) an unlimited number of computers on the network.

This is a very well thought-out system which should be well within the ability of any Information Technology co-ordinator to install.

Apart from fitting the network cards into each computer (a job that requires a screwdriver and about 10 minutes), the rest of the system is no harder to connect than plugging in a mouse.

The overhead for having such a well thought-out and easy-to-assemble system is higher-priced components. But as you presumably wouldn't have to pay for network installation, the cost perhaps evens itself out.

Nexus is SJ Research's proprietary system and seems to be well supported by software houses.

EasyShare by Cumana

Not so much a network as sophisticated disc sharing. This is an efficient, but expensive system which demands that all the computers be no more than 0.9 metres apart – effectively in the same room.

Cumana designed EasyShare as a way of allowing users to share CD-Rom and hard drives, and as a spin-off, limited computer printing. It is a SCSI system and for this reason it will normally support a total of eight devices – a device being a SCSI hard disc, CD-Rom or computer.

Therefore, five computers could access a hard drive and two CD-Roms, or two computers could share six CD-Roms, or any other combination that adds up to eight.

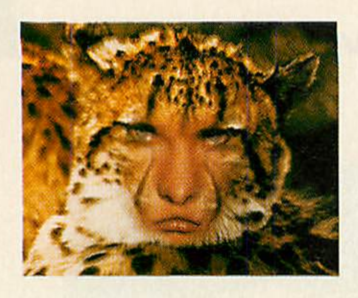
If more devices are required, it's possible to fit two SCSI cards into one computer and use it as a gateway, in which case you can attach up to seven other devices on each of the two cards. With this arrangement, all computers would be able to access all devices. The hard disc is partitioned into a read-only area for applications and then a number of smaller read/write user areas.

Strictly, user areas are assigned to the computer rather than a user, so work is not safe and would have to be archived to another storage medium.

Again, I'm uneasy about such a system for storing valuable work, as teachers would not necessarily have the opportunity to move work to a more secure place before anyone else had a chance to access it.

Telephone numbers

Acorn (0223) 254254	i-cubed (0223) 566112
Atomwide (0689) 838852	Oak (0532) 326992
Cumana (0483) 503121	RISC Developments (0727) 843600
Digital Services (0705) 210600	SJ Research (0223) 416715



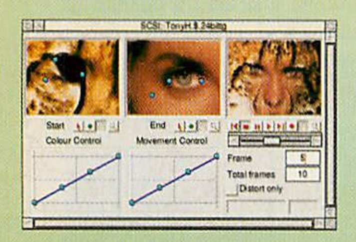
!Rephorm takes two sprites of any size and allows a morph to be generated between them. You simply identify a number of key control points on the start sprite and reposition them to similar places on the end sprite. Rephorm calculates so quickly that the effects of repositioning control points can be seen in real time as you drag them! All calculations are performed in the background so Rephorm never stops the machine from multitasking. The user interface has been widely acclaimed for both its simplicity and its versatility. The morph can be displayed on screen, saved to disc as either an Ace Film or an Acorn Replay file, or individual frames or groups of frames may be saved as sprites.

Since its launch last year, several extra features have been implemented. Chief among these is Object linking and embedding (OLE). Control-double-clicking on any sprite within Rephorm will automatically transfer it into !Paint (or another painting package) for editing. Saving the edited sprite from !Paint will instantly transfer the sprite back into Rephorm, which will then recalculate the effects of the change.

Rephorm has always supported the 16 and 32 bit sprite file formats for the new Risc PC, but a new utility, !UnClear, allows the now obsolete 'ClearFiles' to be converted into sprites for use with Rephorm. Another utility, !Splitter, will split a SpriteFile containing a number of sprites into individual sprites.

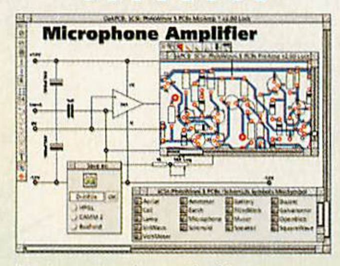
As well as being able to produce morphs and distortions of images, Rephorm can also produce video style special effects such as fades and wipes. These are useful for those people creating and editing Acorn Replay films, providing interesting ways to join two clips together.

Rephorm costs £50
Upgrades to version 1.04 £15



Rephorm

OakPCB II



Having enjoyed considerable success as both a stand alone application, and as part of Design Processor, OakPCB has recently undergone its first major revision to become OakPCB II.

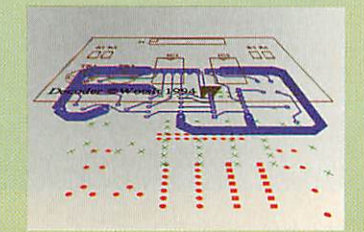
The changes made have been generated as a result of user feedback, and also to take advantage of the improvements which have been made to the operating system since the application was launched under RISC OS 2.

As ever, the user interface to OakPCB is based very closely on !Draw, and users familiar with that package will find no difficulty in getting to grips with the business of creating and editing both schematic diagrams and printed circuit board layouts. OakPCB can handle anything from simple single layer boards all the way up to 4 layer. Comprehensive (and extendable) libraries are provided for both PCB and schematic work.

By default, OakPCB aligns tracks in multiples of 45°, although this feature can now be turned off to allow tracks to be placed at any angle if required. Visual feedback is given whilst in this mode and when editing tracks, so that the tracks change colour when they are aligned at 45° intervals.

A new utility called PCBDrill is supplied which allows circuit boards to be drilled automatically on the Roland CAMM 2 and CAMM 3, and also on Boxford milling machines. Oak PCB II runs on all RISC OS computers including the new Risc PC. It outputs to Plotters and RISC OS printer drivers via Draw Print & Plot (supplied).

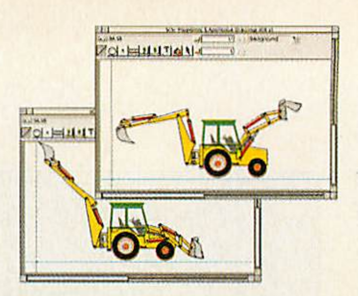
OakPCB II costs £70
Upgrades cost £35



OAK SOLUTIONS

Dial House Chapel Street
Halton Leeds LS15 7RN
Tel: 0532 326992Fax:
0532 326993

Prices shown include P&P but exclude VAT



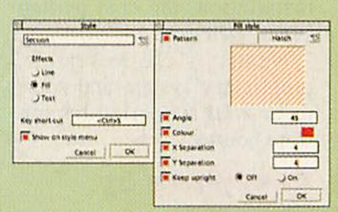
Apollonius PDT is a fully parametric 2D CAD environment. However the user interface differs considerably from conventional wisdom. Normally CAD packages are cluttered with an abundance of methods for drawing each type of object. For example the circle tool will have variants such as Centre/Circumference, Centre/Radius, Radius/Tangent to 2 objects, Three point etc. With Apollonius PDT there is only one Circle tool, but the interface is sufficiently intelligent to know what type of circle you are trying to build by which objects you click on. Indeed the number of options is larger than in most CAD packages.

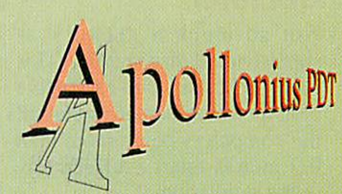
Other noticeable differences are the apparent lack of short line segments and arc tools. Both of these are instead replaced by an 'intelligent pencil' which allows the draughtsperson to draw round the relevant parts of construction lines in one quick operation.

Being parametric, the package allows the designer to answer 'what if' questions very rapidly. The whole drawing will be recalculated and redrawn as you change the positions or sizes of key objects, or even the geometrical relationships between them, by simply dragging any item around the screen.

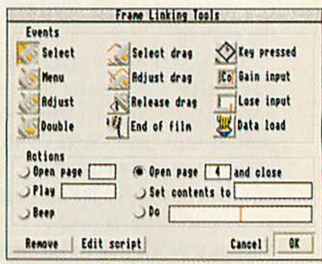
Altogether, Apollonius represents a radical new way of doing CAD. It makes it possible to create clear, flexible, accurate designs, with the minimum of training. The amateur user benefits from the amazing ease of use, while the professional benefits by its unrivalled parametric power.

Apollonius PDT costs £150
Upgrades from WorraCAD and Oak PDT £75





genesis



Genesis Professional and Project are the successors to Genesis II and Genesis Plus and feature greater power, speed, and ease of use. The Genesis menu structure has been simplified by using dialogue boxes to alter the style of frames and pages. Master pages can now be created and added to a library. Application creation and editing has been eased by the introduction of 'Object Linking and Embedding'.

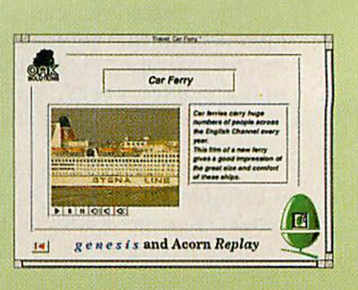
New data types have been incorporated into Genesis, which now supports Artworks, Replay, Windows .BMP and .WAV files. Predefined control buttons can be added to Euclid, Film, Replay and Sound frames. A 24 bit colour model is used throughout and Genesis can handle the new 15 and 24 bit Sprites. The speed at which Genesis pages load has also been increased significantly.

Genesis Professional provides support for Laservision players and for CD. Its powerful Script language has been extended with a host of new keywords and now supports global variables.

Genesis Project is a friendly multimedia authoring system which provides sufficient power to satisfy the everyday needs of most users. Applications authored using Genesis Project are, of course, fully compatible with Genesis Professional so that they can be used as the basis for more complex work. Genesis Project differs from Professional in two significant ways. There is no access to the script programming language, and the overall program structure is simplified with fewer menu options and a reduced range of linking tools. This makes Genesis Project less daunting to the novice user than its big brother, whilst allowing progression to Genesis Professional at a later date.

Upgrades are available from all previous versions of Genesis (including Learning Curve), telephone for details.

Genesis Professional costs £120
Genesis Project costs £50

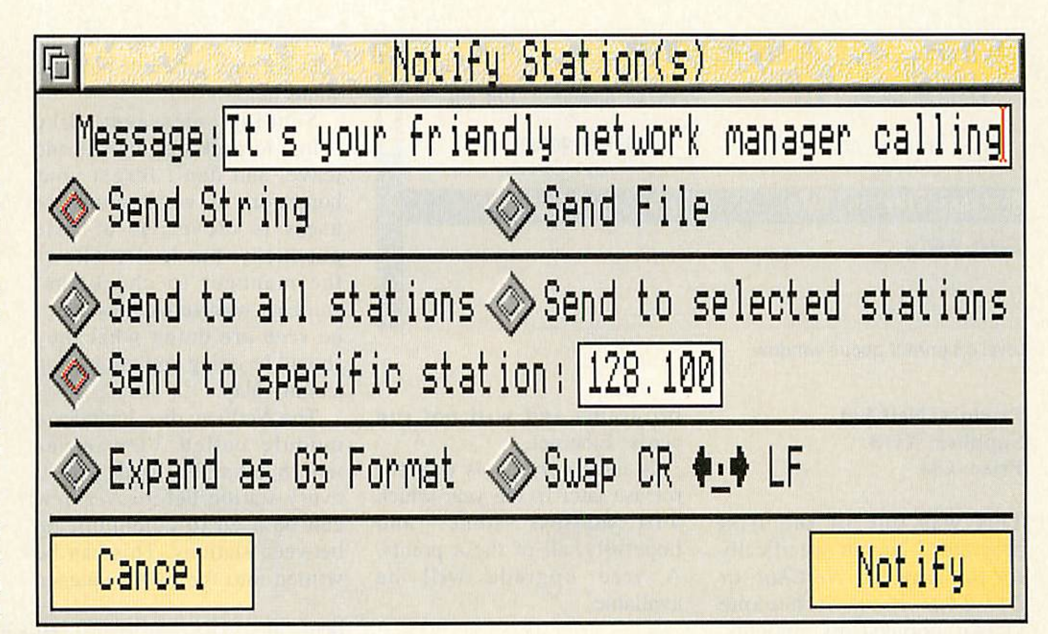


Now Ethernet has arrived, several software houses have been busy writing applications specifically for the network.

Most software will run across the network quite happily, although watch out for non-multi-tasking programs that can sometimes have odd effects – in particular, games.

Some stand-alone software is specifically written to ensure it will not run over the net so a network version will need to be purchased.

In any case, network/multi-user licences should be purchased if software is to be run on a network. The prices given are for full unlimited site licence. Smaller/cheaper versions may be available.



Sending a message using *NetView*...

The gentle touch

Software is an all important part of your computer's system. We show you how networking applications make it easier

Level 4 Fileserver Software

This is not one, but five programs, with several additional utilities thrown in for good measure.

The main part of the system is the fileserver software called *Server* which must be installed onto a hard disc. *Server* requires some setting up as it contains a configuration file which must be loaded into *Edit* for customising with the name of the hard disc(s), type of filing system and network ID number.

This product is constantly being upgraded by Acorn and we're now on Release 3. It does the job well, although it is a little slow in some areas.

This, I feel, is largely due to Acorn's backwards-compatibility policy: it has to support Econet and therefore it's not really driving Ethernet at full speed.

For this reason, several people have thrown up their hands, walked off and started to write their own fileserver software.

The underlying network software is provided by *BootNet* and can be run from disc if it is not in Rom on the network card. Also included in the pack is *Gateway* which is to be used instead of *BootNet* on stations that are used to connect two networks. Like *System*, *Gateway* needs a little setting up but once installed it just sits on the icon bar.

Spooler is the printer spooler and although this can be used on the fileserver, it's better to have a dedicated printer server – however, this must be installed on a machine with a hard disc. *Spooler* queues print data received from the client stations and sends it to the printer.

Once *Spooler* is installed it can be left alone, although clicking on the icon displays a window listing the files in the print queue.

There are also several options including suspending the whole print queue.

MailMan is a fairly basic electronic mail system which, unfortunately, doesn't seem to work under all conditions.

The author assumed that user areas would be in the root directory, which is not always the case. To fix the problem, load *Mailman.!RunImage* into *Edit*, search for:

```
mail$=fname$+"$."+toname$+"
Mail.Intray"
```

and add the exported root of the user areas. In the case of the directory structure in the article on Network Management (page 43) it would be:

```
mail$=fname$+"$.Export."+to
name$+".Mail.Intray"
```

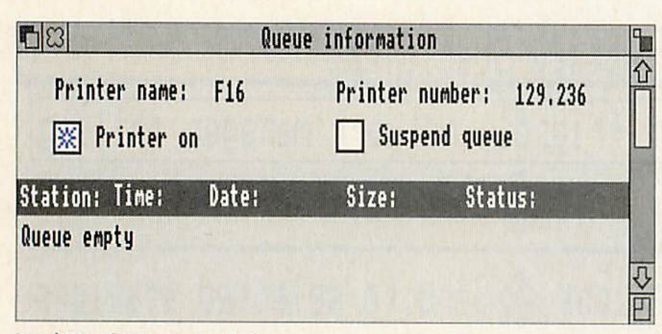
Manager and *AAServer* are looked at on pages 43 and 49 respectively. Other utilities with Level 4 are modules for setting station numbers, checking who's on the network and how much free space is available.

Third-party software

The following are some third-party network applications which will be of particular interest to schools.



... and receiving it



Level 4's printer queue window

Product: NetChat
Supplier: XOB
Price: £84

This was one of the first programs I bought specifically for the network. *NetChat*, or *Net-Chat-up* as it became known amongst my students, allows users to hold a conversation over the network.

The program is simple enough to use. Once loaded, a black telephone icon appears on the icon bar. If the phone turns red it indicates awaiting messages.

Clicking Select over the icon displays a window containing all the users currently on the system and with *NetChat* loaded. Click Adjust and the messages window appears.

You then simply decide who to send a message to, type in the message and press Return to send. The message appears on the recipient's station together with the identity of the sender. The computer generates the user identity based on the station number, but this can be personalised, as can the icon.

This program has considerable potential but there are still four areas that I feel need to be addressed.

Firstly, clients can only communicate with one other client at a time. Therefore, sending messages to several people simultaneously is not possible.

Secondly, only keyboard characters can be sent, effectively eliminating using the software with a French or German class.

Thirdly, you can only have 20 clients running the software at one time and finally, and probably least important, is the fact that the program is supplied with a couple of other programs which are Econet programs and will not run across Ethernet.

A new version is due for release later in the year which will address some, and hopefully, all of these points. A free upgrade will be available.

Product: NetPrint
Supplier: Atomwide
Price: £99

A printer spooler is supplied with Level 4, but is not suitable for direct drive laser printers. Atomwide applied a certain amount of lateral thinking to laser direct printing on the network and came up with this efficient solution.

In use, as soon as a client prints a document, the machine is almost immediately freed. At the printer spooler end, all the software and fonts used to create the document must be present on the computer being used to drive the printer. You'll need at least 8Mb in the printer server to run *NetPrint*.

Product: ClassPLD
Supplier: Oak Solutions
Price: £75

Designed specifically to print to Laser Direct printers, this program has not been without its share of problems.

I've found it works quite well however, with the Risc OS 2 printer drivers. Again, it's highly likely you'll need 8Mb in the printer server.

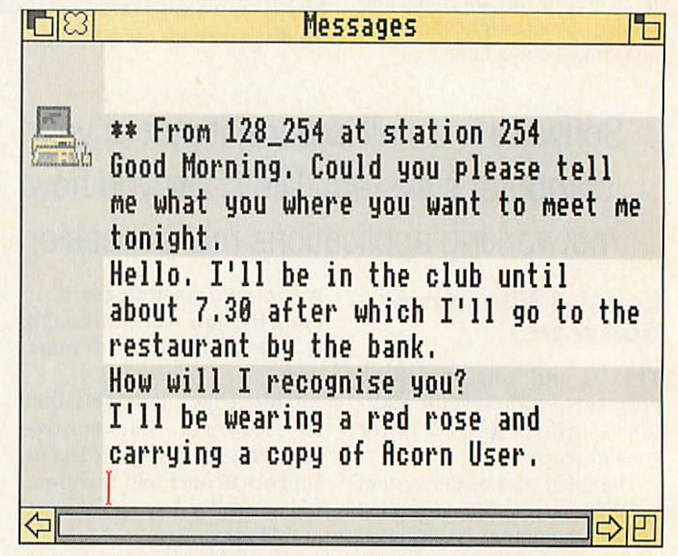
Product: NetView
Supplier: Sanjay Pattni
Price: £29.95

This is a handy little program which allows a user (preferably the manager) to view what's on other stations and to send messages to one, any, or all stations on the network.

This I find particularly useful when someone using the network in a different building wants help.

Sending messages like 'Time to pack up, log off and leave, and don't forget your homework' to whole groups of users is clever, if a little gimmicky, but it also allows the manager to check that students who think they can't be seen are doing what they should be doing and not having a crafty play.

The *NetView* disc includes a module called *ViewServer* which must be loaded into every station before *NetView* can be used to communicate between stations. This can be written into the boot sequence and automatically loaded when a station is switched on.



Communicating with other users using *NetChat*

Product: Squirrel 2
Supplier: Digital Services
Price: £556

Databases can cause problems when run over a network. Many are very disc intensive and so lots of users all accessing different parts of the disc at the same time will cause problems.

Another feature of databases is that, because the files are constantly being written to, it is not normally possible to have more than one person accessing the same datafile.

Squirrel 2 was reviewed in the April issue and its excellence is well known.

What isn't quite so well known is that it is very efficient over the network because it only sends the information needed by the client and no more. Even more important is that it's possible for several people to be editing records on the same data file at the same time.

Product: DataPower
Supplier: Iota Software
Price: £599

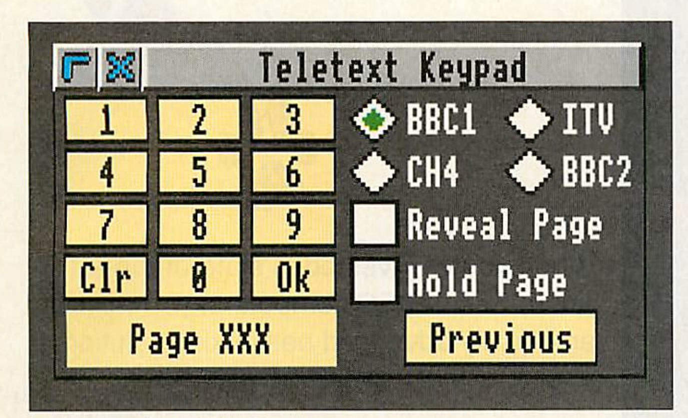
Iota has produced a network version of *DataPower* that also allows any number of users to read and write to the same file. If a user updates a record, all other users viewing that record will see it updated on screen.

Password protection allows the managers to assign different user privilege, right down to specifying which fields can be read/written to. This is the start of using the network as something more than a convenient way of distributing software. This program will form the basis of a full review shortly.

Product: Bulletin
Supplier: XOB
Price: £64

This is rather like a bulletin board, but without the modem. Clients can read and contribute to any of up to 20 bulletin boards on the network. Some will be read only, others will give students the chance to reply.

This is a super program with lots of possibilities. It takes a little while to set up and to get running with some useful text, but it's well worth the effort.



Receiving Ceefax with *TTServer*

This, I would say, is a minimum requirement for a school-wide network. The possibilities for clubs, and small groups within the school are endless. Students could set up and run a magazine, sharing the work and offering it to the rest of the school as a read-only document.

Amongst other things, I can see it as a way of providing students with an anonymous way of reporting grievances such as bullying.

Product: TTServer
Supplier: XOB
Price: £154

Anyone on the network can access live teletext broadcasts with *TTServer*. At the time of writing, it will only work with the Morley Teletext adapter, but XOB will shortly have its own teletext card on sale for about £145.

Teletext pages can be saved as screens of text for inclusion in students' own documents. This is a cheap way of accessing lots of current information.

Product: CDNet
Supplier: PEP Associates
Price: Trial Pack, £39.95

I mentioned this product back in February and believe it is potentially the most important product to be released this year. Essentially it allows standard single-user CD-Roms to be read by several users.

Ideally, you need a dedicated computer with lots of Ram and lots of hard disc space. I run it on an 8Mb A400 with about 30Mb of free disc space.

However, the computer doesn't have to be a dedicated CD server and it will work with less exotic configurations, although performance could suffer as a result.

CDNet can export (theoretically) any number of discs on any number of machines. A trial pack is available from PEP for £39.95 which contains a number of 30-day limited-life keys for CDs, including *Hutchinson's Encyclopedia* (text-only and multimedia versions), the *World of Number* series and the *Chemistry Set* from New Media.

There are also unlimited-life keys included for Acorn's Replay disc and *Education Directory*.

Publishers of CD-Roms, like ILP and Anglia, would be wise to contact PEP Associates to discuss licensing terms.

From the users' viewpoint, purchasing a network version of a CD (or upgrading a single version to network version) will involve the purchase of a software 'key' which resides inside the *CDNet* application.

This key makes it technically and legally possible to run a CD-Rom over the network. The key is installed and the system configured in much the same way as printer driver modules are installed in *Printers*.

The cost of the keys should be about one-and-a-half times the single user CD-Rom price for primary schools and two-and-a-half times for secondary schools.

I hope CD-Rom publishers will not be greedy: CD-Roms are virtually uncopiable and so little revenue should be lost due to piracy. Please bear that in mind when fixing your prices, software companies.

What else?

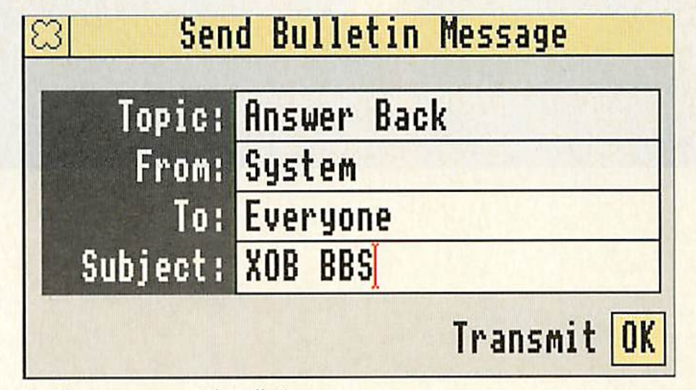
My advice is keep your eyes on the adverts. Now that networking with Acorn computers is a practical proposition, many companies will be developing new products as there is now a real market.

I expect to see several application utilities that should make life just a little easier (like managing the network over the telephone line via a modem) but most important, I expect to see some of the leading publishers of education software producing some innovative material.

I don't mean existing products modified to be network friendly, but new programs that work across the network.

These use the considerable communication potential of the network and allow several users to work together on the same file, without one user deleting what another has done. The latter can be a serious problem with multiple users working on the same databases or documents.

Watch this space.



Sending messages with *Bulletin*

There are several companies who have got network software under development (like one user sending a file to another user).

XOB has been involved with networks for a long time and will have some new products before long. Computer Concepts' Laser Direct and Turbo Driver printer spoolers should also be finished soon.

At least two companies have privately announced alternative fileserver software which will not be Econet-compatible and hence will drive the system much faster. PD software houses too, will have some serious network programs on their catalogues.

Available CD-ROMs

Disc	Description
AED4	Acorn Education Directory on CD-ROM - issue 4
HME92	Hutchinson Multimedia Encyclopedia 1992

Using CD-Roms over a network

Telephone numbers

Acorn
(0223) 254254
Atomwide
(0689) 838852
Digital Services
(0705) 210600
Iota Software
(0223) 566789
Sanjay Pattni
071-351 6192
PEP Associates
(0223) 212251
Oak
(0532) 326992
XOB
(0307) 840364

A network manager's job is a very onerous one and needs to be carried out methodically. School administrators need to recognise that networks do not manage themselves and the task of controlling the system is, at times, tedious in the extreme.

If the Head of Information Technology is to manage the network, s/he will need to be given time in which to carry out the duties – at least two hours per week and longer at the start of each academic year.

Having run an Acorn system for almost two years, I do not feel I'm an expert.

I have, however, discovered several potential pitfalls during this time and have thought of several better ways of doing a particular task, but often too late.

Managing the system

Ever wanted to be a network manager? Well, here's your chance

Security

Ensuring the work saved on the network is secure is a task which needs to be carried out religiously.

The article on network hardware (page 47) outlines some of these problems, but setting up user areas will be the longest task, and a little time thinking it through will save a great deal of time later.

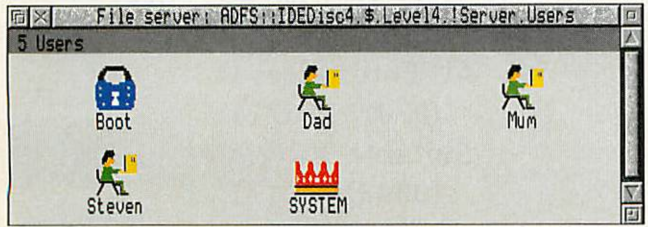
It is not possible to have all the users in one giant directory. They need to be split into smaller groups and for schools, tutor groups or form groups will be an obvious choice. But each year the tutor group name will change. This year's 7H will next year become 8H, then 9H.

This means that every year, all user names will have to change. Many schools have a policy whereby a tutor group keeps the same tutor throughout school.

If this is the case, it makes sense to divide the groups by tutor initials.

These initials, together with the name of the student, will form the user name. If tutors change each year, then one alternative is to incorporate the year of entry.

Next year's intake could have a sub directory name of *Yr1994*, although this too might need to be cut down into smaller groups, such as *Yr1994a*, *Yr1994b* and so on.

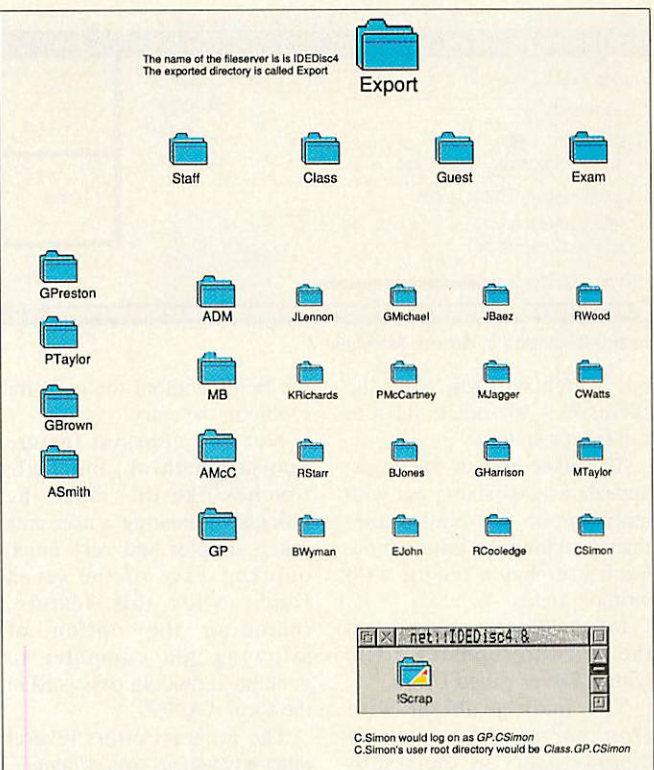


User lists in the Level 4 manager

User details

I provide each student with a form onto which they write their user name and a password. This is then returned to me and after I've entered the details into the system, I return it to the students.

They then have a record of their password and, for the benefit of new users, clear instructions of how to get into the system. The form is on the cover disc together with a *ReadMe* file about customising it for your own use.



A typical layout for a network

AUN requires seven pieces of information per user, although four are normally the same. The information is taken from the completed forms and entered into a text file, which can then be loaded directly into a management program to create the user areas.

Strictly, this should be a Comma Separated Value file, so go to Set type in the Filer menu and change it to CSV.

Entering all the user area information is, without doubt, the longest part of the process of setting up the network, but once done, it only has to be updated every year when a new intake arrives, or at odd times during the year when a casual admission joins the school.

Having got the information entered as a machine-readable file, it can also be output to a database and students could be given a printout from that which at least ensures they get an exact copy of what has been entered.

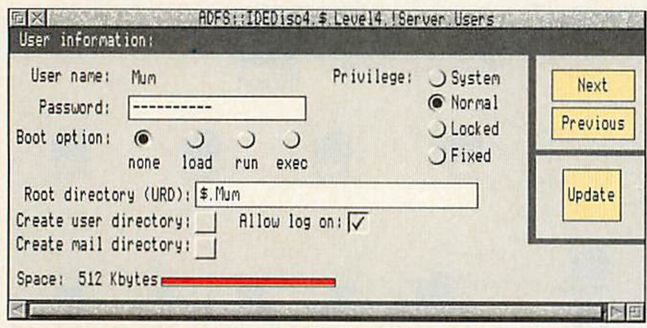
Blank database files are included on the cover disc for some of the more common databases.

A system management program is required to create, alter and delete user areas. Only system managers who have logged on as a full-privilege user can run one of these programs as they allow you to gain access to all user areas, including passwords, user space and privilege levels. Here we look at three management tools.

Product: Manager
Supplier: Acorn
Price: Part of Level 4

Manager is the network manager's program supplied with the Level 4 Fileserver software, and as with the other programs in the suite, it's efficient, but not startling.

It's good enough to get you going, but for anything beyond a fairly simple network, you'll soon find it's too basic and you'll need to look for something better. It's the only



User information in Acorn's *Manager*

one which will run from the fileserver – the others have to run from a station.

The user end of *Manager* appears as a database, but with emphasis on text entry rather than searching for information. Each user has a record with writable fields.

Information is entered and the software updates a file within *Server* called *Users*.

The main problem with *Manager* is that it doesn't display users in their sub-groups, but all in one enormous window. This means that searching for a particular user can take some time.

Product: NetManage
Supplier: Suitable Software
Price: £50

NetManage is the program that I use to manage the school network and will be worth considering if you manage, or expect to manage, many more than about 100 users.

The displays are clear and entry of data by hand is easy. Of particular note are the sub-menus, allowing commonly-used settings to be entered into the fields without the need for typing in the entry.

Not an important feature you might think, but little touches like this make the process of creating a user area much simpler and very much quicker. Five of the seven fields offer this feature, including the option of allowing the computer to generate a random password in the form AA9999.

The program offers several other advantages over *Manager*, notably the curiously named 'tickle' function which enables the network manager to write into several user areas at the same time. This is useful if you want to place a file or directory into the user areas of say, a whole class.

The first time you'll need to do this is when you create the user areas, as they all need to contain a copy of *Scrap*. (An Obey file called *CopyScrap* on the cover disc will copy *Scrap* into selected user areas. Also included is a *ReadMe* file explaining how to use it.)

Any or all of the seven items of data, from any or all of the user area records, can be exported as a text file, and therefore can be used to create a database of network users, or a class register.

I've had some problems with *NetManage* but I've reported them and upgrades have been sent very soon after (sometimes within a couple of days).

User Profile (IDEDisc4)
Dad
Password: GSi Turbo
Free space: 200 Mb
Privilege: Normal
Allow logon: Yes Opt: Off
Station No: 0.0
urd: $.Dad
Cancel Update

Details for a user in *NetManage*

Product: Network Supervisor
Supplier: AU Enterprises
Price: £50

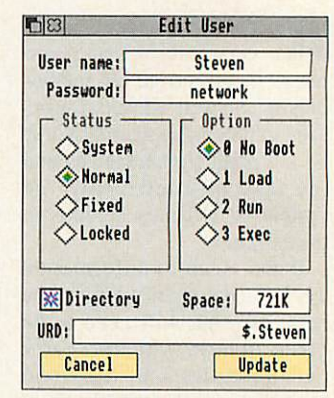
Supervisor is a suite of six programs, although the main one, *NetUserEd*, is the one used to edit user areas.

This program, I feel, is midway between the other two in terms of complexity and flexibility. Certainly it's easier to use than Acorn's *Manager*, although it cannot easily edit all user area data items, but it doesn't have the tickle function – a key feature of *NetManage*.

One feature it does have, that is missing from the other two, is the ability to create a text file of modifications to several user areas. This feature, I feel, could be useful, but it doesn't seem to provide much of a time-saving against typing in the alterations directly.

I have to say I have used this program only briefly (compared with the other two) and I may change my mind about this feature later.

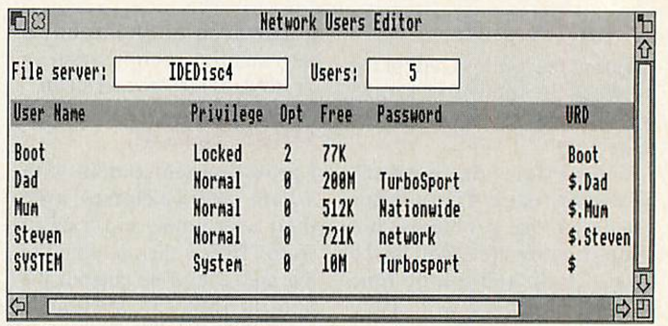
This suite was designed for both Level 3 and Level 4 and provides some utilities for



Editing individual users with *Network Supervisor*

Econet that aren't really needed for Ethernet and some utilities that won't run on Ethernet. *NetPass* is a utility to change passwords, but with Level 4 this can be done from the command line, whilst *NetTrans* can transmit the configuration and/or time to any number of stations. Apart from the main application, I feel this could be the most useful of the lot, but it won't run on Ethernet.

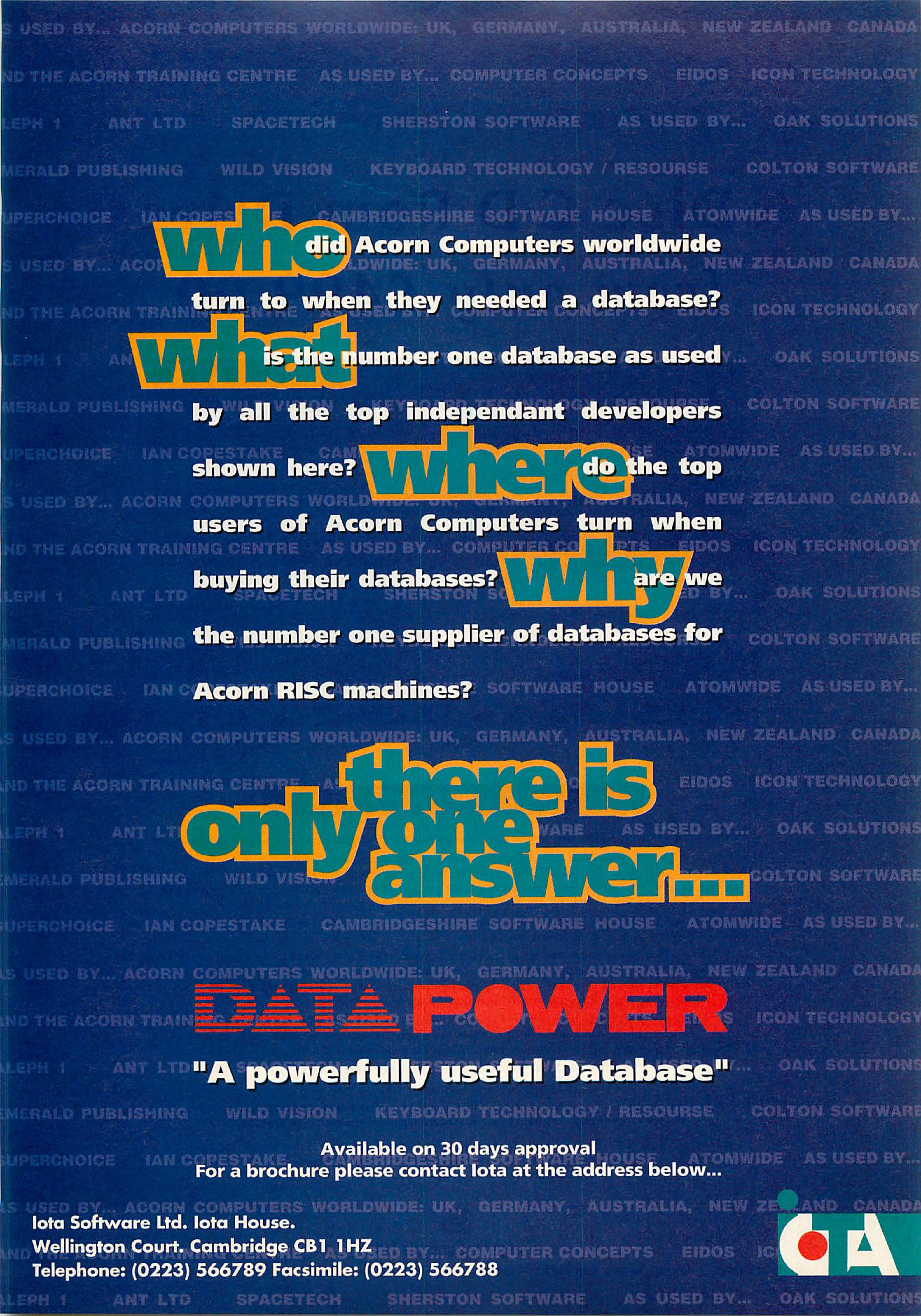
Protect is an interesting application causing the fileserver to be rendered unusable until a password is entered, and just to confuse, this suite comes with an application called *NetManage* which does a number of useful things, like set the station number and list current users, and several less than useful things like setting the fileserver clock from one of the stations.



Displaying user details with *Network Supervisor*

Telephone numbers

Acorn
(0223) 254254
AU Enterprises Ltd
(0707) 266714
Suitable Software
(0638) 720171



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'Computer Concepts' six-disc CD-Rom drive

All part of the chain

Linking computers onto a network means having the right equipment. We show you the choice of hardware to meet this need

Apart from network cards, which are available from half a dozen companies, there are a few other items that need to be budgeted for when creating a network.

The main computer will need to be a high level model with 4Mb of Ram and a hard disc. If the network is to run a separate application disc, you'll need either an 80Mb or 120Mb disc – the sort supplied with an A5000 will be fine.

The size of the hard disc for user areas will have to be much larger. If you restrict users to just 800K each (the size of a floppy disc) 100 users will need 80Mb and 1000 users will need 800Mb.

The rule here is buy the largest hard disc you can afford, and don't then be surprised if you run out of space and have to start using compression programs.

At present ICS markets a range of high quality, high capacity hard drives. If you fit a disc greater than 512Mb you'll also need to fit ICS's Wizzo chip.

Data backup

Backing up data is one of the most important tasks for a network manager and a high-speed tape recorder called a tape streamer is used.

There are companies who will supply tape streamers, but these seem to be expensive, slow and not particularly well suited for restoring the odd lost file.

'Safe and Sound' from Morley is about the best I've seen and this includes a tape streamer and software. The software works well but will not cope with open files, so the network should be closed down during backup.

DAT systems are coming onto the market and floptical drives are also an option, but at present they're very expensive. The cost of hard discs has come down a lot in recent years and a removable hard disc system like Syquest looks a better buy at present.

ICS is currently selling 105Mb drives but will shortly be selling 240Mb versions. With compression it should be possible to archive over 400Mb of data per disc.

If you can easily split up the contents of a fileserver (such as into class areas) this system will be much quicker to restore the odd lost file and I doubt it will be any less secure.

Leads

It is possible to make drop leads yourself, but frankly it's not worth the trouble when Lindy will meet all your needs for leads at astonishingly low prices.

Lindy's BNC leads are very strong with bonded ends to withstand tugs and pulls.

You'd never make them as well, it will probably cost more and if you muck it up you can start blowing up network cards.

Outlets

Wall-mounted junction boxes are essential if you're going to be moving computers around regularly (like once a day) or if you think there's a real chance of malicious fingers sabotaging the system.

There are two types, but the safest are those that contain a cut-out switch so that when a computer is removed, the integrity of the network is automatically maintained.

Junction boxes from Vitalec cost about £25 each and plastic T-covers cost £2.97 for five from RS (Order Nº 485-530). Need I say more?

CD-Roms

Having got CD-Roms to run across the network, I feel it is only now possible to justify multi-drive CD players such as those from Cumana and Computer Concepts. But which should you buy?

Cumana's system is effectively six single players in one box, and CC's is one player with a multi-play auto-change cassette containing six discs. CC's is half the cost and is claimed to be twice the speed (presumably once the disc is loaded).

Each has its advantages, but I wonder what would happen if six users all asked to access six different CDs at the same time in CC's drive?

Telephone numbers

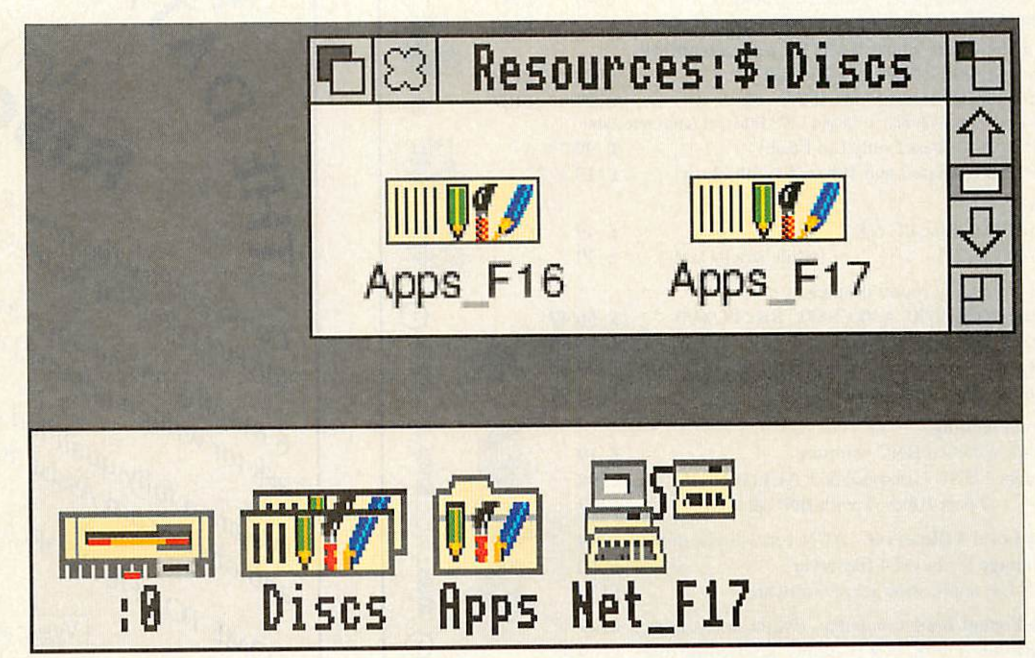
Computer Concepts
(0442) 63933
Cumana
(0483) 503121
ICS
051-625 1006
Lindy
(0642) 765275
Morley
091-257 6355
RS
(0536 201234)
Vitalec, via i-cubed
(0223) 566112

Moving large applications around an AUN network can be very time consuming, especially if several people are on the network at the same time. For this reason, three companies, including Acorn, have produced accelerators which enable applications to be loaded much faster.

From the client's viewpoint, all three work in more or less the same way, varying only in speed and appearance on the icon bar.

Basically, an area of the fileserver's hard disc is exported as a read-only application area, or alternatively a second hard disc could be installed in the fileserver and reserved for applications.

Regardless of the physical number of drives, the application disc and the user workspace are 'seen' by the client stations as two quite separate entities.



Speeding up application loading with Acorn's *AAServer*

Turbocharging

Using a network can slow down the processing. We show you how to speed up the movements and keep the system going

Client/server

Each of these programs comes in two parts – server and client. The server part is loaded along with the fileserver software, while the client needs to be downloaded to each client station.

This can be done by writing an instruction into the client computer's boot-up sequence so that the client software is launched on power up.

The drawback here is that it takes much longer to power up the network. For this reason, some network cards now include the client-end software within the card itself.

You may not alter the contents of the application disc in any way, which is why they must be read only. This is generally not a problem for applications.

Product: AAServer
Supplier: Acorn
Price: Part of Level 4

This program is now included in the Level 4 fileserver pack. It can transfer applications at a rate in excess of 350K per second, which is a significant improvement over the standard Ethernet application loading speed.

However, when loading an application into 30 or 40 machines, which is often the case at the start of a lesson, the speed advantage doesn't appear quite as great.

This is an easier program to deal with than *AppFS*. It requires little setting up, and the students generally feel more comfortable with *AAServer*'s in-house style which matches the Apps icon on the left of the icon bar, as in the screen shot above. Another point is that *AAServer* can also be used with Acorn Access.

Product: AppFS
Supplier: Angelsoft
Price: £130

This was the first accelerator of this type and requires a read-only partition of the hard disc which it then exports. Alternatively, a second disc can be placed in the file server and can be exported.

At only £130 it represents excellent value for money. Compared to *AAServer*, this application suffers less speed drop-off during busy periods.

I don't feel it's quite as versatile as *AAServer* as it seems only to be able to access one application disc, whereas *AAServer* can access as many as are present. It's also slightly trickier to set up.

The i-cubed network card has the client end of *AppFS* written into its Rom and Risc Developments is just about to start doing the same.

Product: NetGain
Supplier: Digital Services
Price: £200 (First 10 machines), £100 (every 10 thereafter)

This solution requires an expansion card to be fitted to the server and a module to be downloaded into the client stations which adds all the exported applications to the Apps directory on the icon bar.

If the others are like turbo chargers, *NetGain* is rocket-assisted, but is this speed necessary for the average school network. The client end of *NetGain* is included in the cards of both i-cubed and Digital Services.

I have used *AAServer* and *AppFS* extensively and they are both able to load major applications like *Impression* very quickly on several stations simultaneously.

Users of very large networks will find *NetGain* extremely useful, if not essential. The rest of us might consider the cheaper alternatives good enough and any further speed an expensive luxury.

Telephone numbers

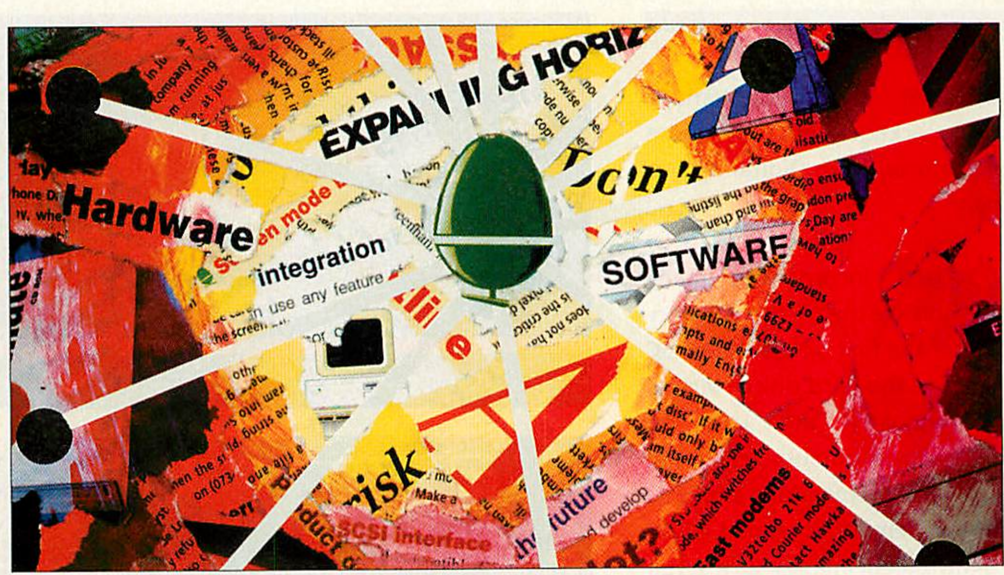
Acorn
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Angelsoft
(0554) 776845
Digital Services
(0705) 210600



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Airbrush Tool
Density
50
Diameter
40
Distortion
Angle
Gradient
Gradient



Terms of endearment

Confused by technical networking terms? You need our glossary

10base2 – Otherwise known as Thinwire Ethernet or Cheapernet. Uses BNC connectors and co-axial cable (similar to television aerial cable). This is the type most schools will install.

10base5 – Otherwise known as Thick Ethernet. It is much more expensive to install than 10base2.

10baseT – Otherwise known as Twisted Pair Ethernet. Uses telephone plug type connectors.

Application disc – A part of the fileserver hard disc, or a separate hard disc which is for applications and is usually read only.

AUN – Acorn Universal Network. Networking products from Acorn.

Backbone – A cable (probably running through a building) onto which a number of small networks can be attached.

BNC – A plug commonly used to connect network cards and network cables.

Bridge – Intelligent repeater. Routes data to required segments of network only and is only for very large networks.

Client – One of the users of the system.

Client station – A user terminal. A computer connected to the network.

Drop lead – A short cable running from the main network cable to a computer, usually via a junction box.

Econet – Acorn standard network originally devised for the BBC computers.

Ethernet – Xerox standard network capable of much higher data transfer.

Fileserver – The central computer to which all other computers are connected. The fileserver will normally contain a hard disc which can be read and written to by the other computers.

Fileserver software – The program(s) run by the fileserver(s) that control the network such as Level 4 from Acorn.

Gateway – A link connecting two networks.

Hub – A sort of junction box into which computers are connected.

In-line connector – Used to connect two cables together.

LAN – Local Area Network.

Log off – User signing off from the network. A user failing to log off is leaving his/her user area open to unauthorised access. (It's rather like leaving your house door open and wondering why you've been burgled when you return.)

Log on – User signing on to the network. Usually requires a username and a password.

Network – A number of computers linked together.

Network ID – Each network must have a unique number. On Level 4 networks, it is usually 128, 129, 130 for Ethernet and 0, 1, 2 for Econet.

Network Station 254 – The station number usually reserved for the fileserver.

Network Station 235 – The station number usually reserved for the printer server. The fileserver and printer server can be the same computer if it is really necessary.

Manager – The person responsible for running the network. Duties include adding and deleting users, installing and updating software.

MAU – Media Access Unit. A3020 computers usually have this fitted at the back of the computer.

Multi-port repeater – Effectively an amplifier to boost the network signal. Can also be used to create spurs (not to be confused with a bridge).

Password – A word or phrase that is known only to yourself and to the network system. When entered it will be displayed as either stars or dashes so nobody can read it from the screen.

@#&%-*@! *^&$# – One of several expletives used by the network manager when the error message 'Network Station 254 not listening' appears on all terminals.

Peer to Peer – The simplest type of network which simply shares resources like hard discs and printers, but offers little file security.

PIN – Personal Identification Number is like a numeric password and is used to gain access to the system.

Printer spooler – A program that receives data which has been sent to a printer. Several people may try to print at the same time so the spooler queues the data.

Privilege – The amount of access a user is allowed into the system. Managers will have access to everything, some users can read and write to parts of the system, others may only read.

Station ID – Each station on the network must be given a unique number. On Level 4 networks this is between 2 and 253.

T-adaptor – Fits onto BNC socket on back of network card.

Tape streamer – A sort of tape recorder designed to copy the contents of a hard disc for security.

Terminal – A single computer station on the network.

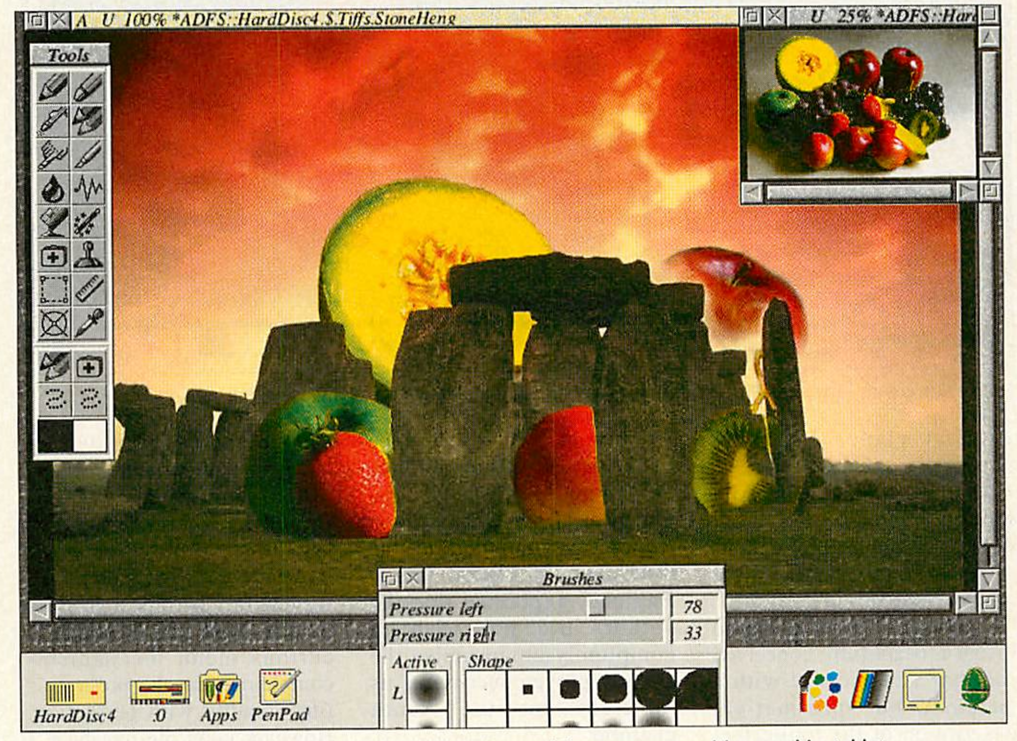
Terminator – A BNC plug with a resistor (usually 50 ohms) soldered across the two terminals. Networks normally require one at each end.

User area – An area of the hard disc in the fileserver which is given to a single user. As far as the user is concerned, this area will look like any other filer window.

User name – A string of letters usually based on your name and used to log into the system.

Touching up

In the first of a three-part series looking at the resurrected world of Acorn bitmap software, Jack Kreindler explores photo retouching and enters a new dimension full of magical imagery



Intricate and subtle image composition using *DA's Picture* and the pressure sensitive graphics tablet

When the graphics performance specification of the Risc PC was revealed to the Acorn press back in February, I was pleased that a hardware backbone had been designed to take graphics on the Acorn back into contention with the 'big boys'.

At the time, however, it would have taken an expert in forceful interrogation to prise any information out of developers concerning new graphics products. Even the scoop-mongers on the bulletin boards were uncommonly under-informed, such was the impact of Acorn's Non Disclosure fever.

The then imminent Risc PC did generate excitement, granted, but only when the software actually appeared at the official London launch of the machine was I finally content.

That is an award-winning understatement as the number, quality and prospective prices of the new packages seem too good to be true – Acorn bitmap graphics have taken a categorical quantum leap in tandem with the birth of Risc PC.

One of the two main areas these packages aim to conquer is photo retouching. With the rapid, or at least hopeful, expansion of Acorn's Graphtex division for professional DTP solutions, the software has been welcomed with open arms by pre-press publishers and repro houses, as well as by enthusiasts and artists.

So what exactly is photo retouching? Well, have you ever wondered how those Miss Perfects who grace the cover pages of Cosmo and Vogue look so impossibly flawless? What about those stunning postcard sunsets so rich in colour and contrast they appear almost unreal?

No, it's nothing to do with makeup or photographic prowess; the stupendous stills that we see today have almost certainly gone through some process of digital filtration and image manipulation in photo retouching packages.

Photo retouching is not just associated with photograph fiddling, as was proved last year at an open day at the Literary Institute in London where David Hockney was let loose on a Mac.

With the aid of Adobe *Photoshop* he managed to produce some quite stunning photographic image compositions in contemporary surrealist style.

Other major areas of photo retouching usage include design and advertising – it really is an area which holds enormous possibilities for the creation of visual imagery, and now it's here on the Acorn.

Front runners

There are several runners in the best photo retoucher stakes for the Risc PC. In the expensive corner we have *PhotoDesk*, from the stables of Spacetech, weighing in at £169.95.

Then there's the dark horse, Digital Arts' *DA's Picture*, flown over from the professional Atari market, which was expected to be £199 but is emerging at a remarkably lean £99.

Finally, on the outer lane is Oregan's *PhotoTouch*. Though included in the review this is not strictly a photo retoucher (in the professional sense) but more of an image processor with image creation facilities – an expanded, 24-bit colour version of the excellent PD package, *Process*.

As it is not directly comparable to the other two, *PhotoTouch* is reviewed in a separate section at the end. Incidentally, all the packages work on older series machines as well, though in 256 and 480K 32,000 colour screen modes serious photo retouching is rendered unviable.

PhotoDesk and *DA's Picture* were both featured at the *Acorn User* show in prerelease form, and from opinions voiced at the venue it was very 50:50 as to which looked the better.

Both programs have come a long way since those bug-infested days back in April but, no matter how much window shopping you do or however many demonstrations you attend, the proof of the pudding is always in the eating.

It must be stressed that the puddings in this review were not final versions; they have been subject to intensive development and refinement over the past few months and the pace of the work continues.

Criticisms and recommendations will have been acted upon even after this issue goes to press and the applications will undoubtedly have gone through yet another evolution. But in their near-release state this is how they fare.



Forget skin cream – use *DA's Picture* and the Eesox graphics tablet and watch the years fall away

At first glance the more appealing of the two is *PhotoDesk*. Even before loading, *PhotoDesk* has an air of good design about it with its airbrush icon – an excellent piece of graphics in itself.

The user window opens to reveal a beautifully conceived tool bar underscored with a succinct, but informative, description of the tool-effect combination selected.

DA's Picture is a thoroughbred from Atari land, and though it would be an insult to this package to describe it as just an Atari port, the user interface does suffer from Monochrome Atari-Icon's disease and quite a severe strain of Interface Unfamiliaris.

I once read Canon's 'how-to-become-good-at-DTP-instantly' guide bundled with their BJ600 printer. The only thing that stuck in my mind having read this masterpiece was a section on how colour can add impact to visual presentation and enhance absorption of information.

This is something that *DA's Picture* lacks, though its interface has improved leaps and bounds since the *Acorn User* show – much of the advice and comment expressed by the public has been taken aboard by DA.

However, the whole feel of the program is rather unconventional, for the Acorn platform at least. Ray Cross from CGS Computerbild, the distributors for Digital Arts in England, explained that the authors did not wish to completely compromise the already proven success of its interface for the Acorn platform.

As the Acorn is only a recent entrant in the world of photo retouching, perhaps it is wise for software houses to base their interface design around tried and tested solutions. However, you could argue that Acorn's operating system and style guidelines excel in comparison to many other operating systems including Atari's GEM Windows.

After a short adaption period the interface became a pleasure to use, with the seemingly curious menu mechanisms complementing the program's functionality with perfection. However good the interface, I still prefer colourful icons.

In initial loading and subsequent loading of foreign format images like TIFFs, *DA's Picture* is marginally swifter. *DA's Picture's* virtual memory (hard disc random access memory system) also operates more efficiently than *PhotoDesk's*.

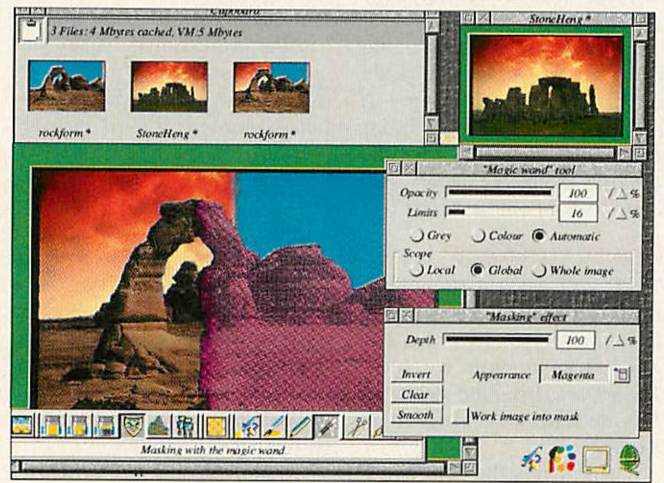
This may be because of the very clever 'tiling' routines that have been implemented in the former, and the fact that *DA's Picture* seems to predict which pixel area or whole image will be in use next and caches that block in one lump.

In this respect *DA's Picture* does have the edge. Both the packages have extensive file importing and exporting facilities for filetypes such as sprites (8bpp to 32bpp), all sorts of TIFFs and JPEGs at optional levels of compression.

The abstract notion of a program's 'feel' is difficult enough to realise, let alone express in words. What is definite is that the two packages do feel very different – same family, different species.

To use evolutionary terminology, *DA's Picture* has grown out of primordial Adobe *PhotoShop* sludge, with classic photo retouching icons and pre-set facilities like 'water-colour' and 'smudge', while *PhotoDesk*, a recombination of the photo retouching and image-generation branches of bitmap graphics, is not based on anything I've ever come across, from Amigas to Silicon Graphics workstations.

PhotoDesk has been designed around one basic principle – any of the effects will work with any of the tools. For example, you can clone (pasting an area of one image onto another) with the airbrush, perhaps across an effect gradient and with a texture map.



Stonehenge's clouds magically transported to Nevada using *PhotoDesk's* global magic wand fill feature.

Limitless facilities

As you can see, *PhotoDesk* provides an almost limitless number of facilities, a large proportion of which would never be used purely for photo retouching but contribute to making *PhotoDesk* a phenomenably flexible and versatile application for creative art as well.

This is not to say that *DA's Picture* could not be used for artistic creation, as its facilities for this outnumber and outperform any previous Acorn art package to date. It's just that *DA's Picture* is not specifically designed for such a purpose. For more artistic,



Pastelisation in *PhotoDesk*

creative pursuits *PhotoDesk* gets the chequered flag.

Where *DA's Picture* stands out is in traditional photo retouching. It allows two tools to be configured for use by the select and adjust functions respectively, all of which are influenced by parameters such as transparency, brush size shape and intensity, spacing, start and end points and duration for graduated strokes, opacity and more.

Brush strokes are teflon smooth and the anti-aliasing is accurately calculated. However, by the time you read this *PhotoDesk* will also have full support for pressure-sensitive graphics tablets.

At the time of writing only *DA's Picture* supported such input devices and did so to superb effect, greatly improving the utility of practically every function.

PhotoDesk, which uses its own set of extended brush variables, is ideal for manipulating single images. In the first release you'll be able to screw up your fantastic snaps with more bizarre effects than *DA's Picture* (version one), dealing with multiple screens taking up dozens of megabytes of virtual memory.

When you are desperately pushed for screen space, *DA's Picture* is a far nicer environment to be in. Its speed, professional-user menu option and little hot key features for mouse-controlled image scrolling and magnification all help to give *DA's Picture* a more dedicated, professional aura for photo retouching.

There is no real winner of the battle. In any case, medals should never be given for the heats, only in the final. Speaking prospectively, *DA's Picture* looks to be the best bet if photo retouching is your only game, but unless you were once an Atari owner I can assure you that you'll get no feelings of *déjà vu*.

Having said that, once accustomed to *DA's Picture's* unfamiliar environment, complex photo retouching is made as easy and fluid as possible.

PhotoDesk is excellent if you don't require very high throughput of professional photo retouching jobs. The program is able to do everything that *DA's Picture* can do, perhaps even a little more in photo retouching, and it also has vast potential for image generation.

But its price tag is almost seventy-five percent more than DA's asking price. The creative aspect of both packages will be featured in next month's introduction to the new creative art packages on the Acorn.

With a view to the future, both products are planning modular upgrades including scanner and printer support. Effects like texture mapping will appear in *DA's Picture* as future versions are released, with extra tools and more advanced image manipulation processes to be included in both packages later in the year.

The story is definitely not over with regard to the development and improvement of these applications. Exotic effects like fractal generated texture maps and possibly depth-cued rendering of effects and filters may not be too far away. Finally, if you are a proud owner of a spanking new Risc PC, or a bargain second hand A5000 with colour card, remember that these packages represent only the first wave of true colour bitmap graphics programs.

No doubt other companies with a history in graphics software, both established and new to the Acorn scene, will already be on the development bandwagon.

The early bird does catch the worm, but late as arrivals will have been developed in order to attack the market leaders they will have to offer something very special indeed. They may be worth waiting for, but only time will tell.

PhotoTouch

I wouldn't blame you if you thought that graphics news was a little confusing at the moment. A lorry load of new packages has arrived/should have arrived/could arrive, the likes of which have never been seen before.

To compound the problem further *PhotoTouch* is confusingly similar in name to *PhotoDesk*, yet the former is not nearly as much a photo retouching package as its name might suggest.

PhotoTouch is a 24-bit image processor with extensive image manipulation facilities. It is the natural progression of the PD package *Process* by Henrik Bjerregaard Pedersen, which had enough effects implemented to satisfy the deepest desires of even the most extreme image processing fanatic.

PhotoTouch now includes effects such as morphing, a comprehensive drawing and painting window, and it operates in 16-bit and 24-bit colour screen modes.

Unlike the 32-bit photo retouchers featured above, *PhotoTouch* does not offer an 8-bit (256 level) mask, nor does it offer the speed or the image generation facilities provided by the others.

What it does offer is an abundance of interesting and unusual processing effects, including a few taken from the world of professional image analysis, together with the more conventional ones like gamma correction, hue shift and so on.

All this is in a well-designed user interface, which allows toggling of processes between images and a recording facility for replaying the process sequences for different images.

The only major down side to this package is that its role, in the light of the new bitmap packages available, would be a supplementary one, and a pretty expensive one at that.

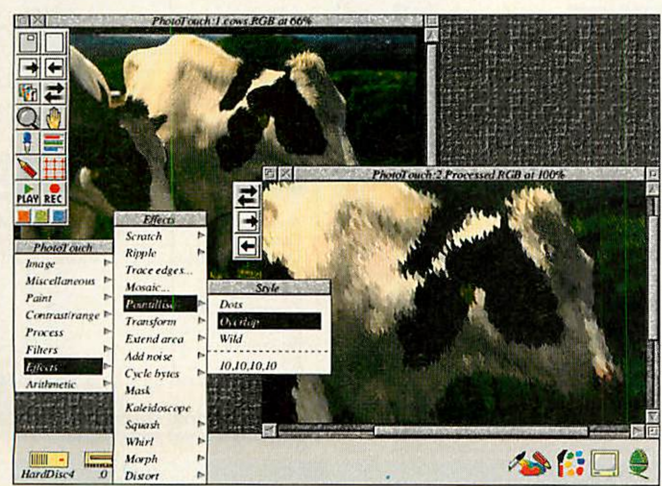


Image processing with *PhotoTouch*

Product details

Product	Supplier	Tel	Price (ex VAT)
DA's Picture	CGS Computerbild	071- 679 7303	£99
PhotoDesk	Spacetech	(0305) 822753	£169.95
PhotoTouch	Oregan	021-353 6044	£79.95

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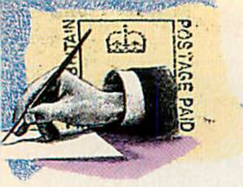
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LETTERS

Write to reply?

I've noticed over the last few months that the Letters Page seems to have at least one letter from a software house, replying to points raised in a review.

Although sometimes the letters are there to correct aspects of the review – a feature overlooked, or an enhancement to the product which addresses criticisms made – some just seem to say 'well, we think our product is great, so there.'

What is your policy when it comes to reviews? Are you too scared to criticise for fear of a backlash from the software house, or is it just that your reviews are so often contentious or wrong that you need to publish moans from the supplier to placate them?

I, for one, would rather read reviews that call a spade a spade, rather than letters which simply repeat the adverts elsewhere in the magazine.

Mike Simmons
Doncaster

See Viewpoint.

Give me power

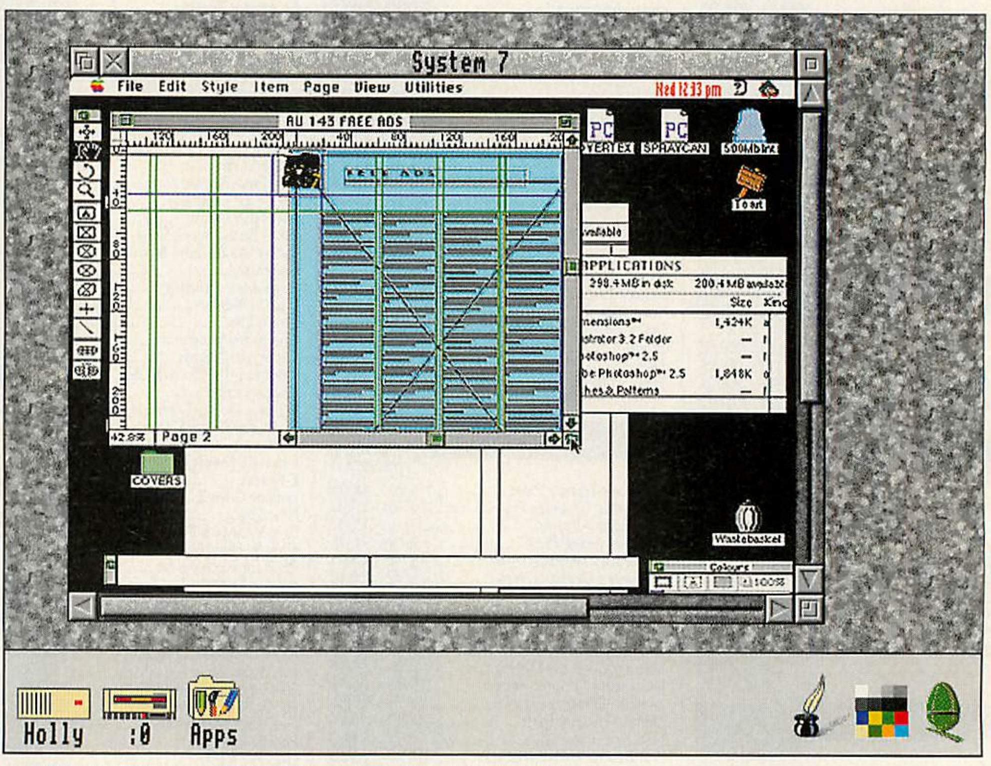
Having used Acorn Risc machines in business and education for over five years now, I have long bemoaned their lack of integration with Apple and Intel machines.

Finally, that prospect looms with the Risc PC, and I would like to make a truly heartfelt appeal to hardware developers such as Aleph One.

Please don't expend too much effort on the 486 co-processor. Instead concentrate your efforts on the Power PC from Apple/IBM, and give us customers the best of all three worlds.

Richard Hull
West Yorkshire

Just imagine that: a Risc PC running Risc OS, Windows and System 7 all in one box. There's no denying that there may be a Power PC co-processor one day, but the amount of work involved in designing the ASIC does mean it is a reasonable time away. Maybe...



Just imagine if this was possible using a Power PC card with System 7...

Notify horror

All teachers of computing and in charge of Econet networks breathed a sigh of relief when Risc OS 3 replaced Risc OS 2.

Why? Because Acorn had listened to teachers and removed *Notify*, a much misused facility with which erring pupils would send all sorts of messages, and abuse, to others.

I think it is most irresponsible of you to release this demon back to haunt us on this month's free disc.

M J Weston
Gaywood Park
High School

Sorry if *Notify* is causing chaos on your network. Personally I found the *Notify* function very useful, but then again I was using a network in a professional publishing setup, rather than a school.

You can't please all the people all of the time, I suppose.

Ticked off

We were pleased to see the review of *Class* in April's issue and generally found it to be fair and accurate. There are, however, some points which we feel should be clarified and brought to the attention of your readers.

In the article, John Woolard commented about the time taken to record the progress of each child. John failed to give sufficient mention of the Multiple Edit feature of *Class*.

Briefly, this feature lets you set the progress statements for any number of selected children or specific groups of children. In normal use it is possible to record pupils' progress quickly, while allowing an individual record to be fine tuned if necessary.

The article also commented on the time taken to create your sets of aims and objectives. While we agree that this process takes some time, any system which allows users to create their own structured comments would have a similar time commitment. We feel this point was not made.

Finally, we would like to point out that we are happy to send a demonstration disc to anyone interested in *Class* as long as they send a suitable stamped self-addressed envelope to: LSU Enterprises, LSU College of Higher Education, The Avenue, Southampton SO9 5HB.

Adrian Halnan
LSU Enterprises

Begin again

My involvement and interest in computers and computing began just over a year ago. At the time, I became involved due to an extension of my teaching role into Information Technology, which resulted in me purchasing an Acorn A3020, monitor and black-and-white bubble jet printer.

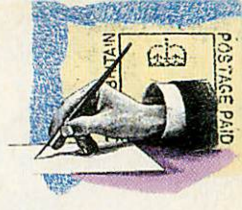
I have been a keen reader of *Acorn User* for over a year, and look forward to each issue. Unfortunately, very often the articles included tend to assume that the reader has more than just a passing understanding of the subject matter, and its related jargon.

While I appreciate that the 'brief' of your magazine extends beyond catering solely for the new (and inexperienced) user, and that you already provide a 'free' *Acorn User* Handbook with a years' magazine subscription, I respectfully suggest that you could meet the needs of a considerable 'slice' of the market if you catered for the new user on a regular, monthly basis.

Having made this suggestion, it seems obvious that I should imagine you have already considered it, and for some logical reason, have not pursued it.

This must surely be the case when I consider that the 'other' Acorn magazines also fail to cater in the ways suggested above. Or is it an opportunity for *Acorn User* to be the pioneer...

Michael Evans
West Glamorgan



We at *Acorn User* try to cater for as many of our readers as we can – hence the reader survey last month – but we also have a specific market we go for.

Our market aim is simple: we cater for the dedicated, professional user of Acorn computers, the sort of person who is seriously considering the Risc PC, who will buy top-end software like *Impression Publisher* and who will buy add-ons galore. Essentially our readers are the keenest Acorn users in the market.

So, we have to reflect what our readers want in the magazine; we present top-class journalism, detailed reviews of relevant products, columns written by experts in the field, serious educational coverage – in this way *Acorn User* is the sort of magazine you grow into, but not out of, and that's why we don't cover beginners' issues in detail.

But if you all want coverage for beginners, just let us know. We take your letters very seriously.

Silly standard

Re: 'Risc PC and Education' by Geoff Preston in the May issue. When Geoff Preston wrote that he believes the notion of the 'industry standard' to be a myth, did he not understand that there are many millions of IBMs and compatibles and Apple Macs worldwide?

Global personal computer sales figures for 1993 were $66.3 billion. Apple, IBM, Compaq and Gateway, Intel and Motorola, and Microsoft etc. currently set the industry standard because they sell the most (which, granted, does not always mean it is the best, but their stuff does work).

There is nothing mythical about many millions of dollars of revenue, and all those computers will not disappear overnight.

I suspect that by the turn of the century the Power PC platform will be the new standard, and if Mr Preston wants to be able to discuss what today's children might be using tomorrow as adults, he has to educate himself about what is going on in the computing world today.

One only has to look in on virtually any high-street business to see what kind of computers are in general use, and I, for one, have never seen an Acorn in such an environment. That is why parents are worried about compatibility and the industry standard.

There is a bad tendency of too many Acorn fans knocking non-Acorn platforms; that does not help the Acorn cause one iota. It would be better for such people to direct their energy into promoting the Acorn product more positively.

Personally I think Acorns are great and am overjoyed to read that the company has got its marketing act together for the Risc PC. If Acorn's move away from proprietary insularism is serious, then the company will have every chance of vying with the mainstream leaders of a booming desktop computer market.

Anyway, I am a customer for the Risc PC!

George Szászvári
London

I knew Geoff's piece would provoke quite a passionate reaction – and so did he – but this is better than I anticipated.

As the whole point of printing contentious articles is to encourage debate, here is Geoff's reply to the above.

'I intended the article to be contentious, but I stand by what I said. There is no single industry standard and the comment made by George Szászvári actually seems to agree with that point of view: there is no single industry standard, but apparently a standard for every industry.

'I'm not knocking PCs or Apples (I use both frequently) but let's look at the facts. For the classroom, I believe Acorn is the one because the software is there at sensible prices. Once you've learned to use *Impression*, go out into the big wide world and how long will it take to learn a similar program on a different platform?

'I'm fully aware of what is happening today, both within education and beyond. I gather the next Windows will have an icon bar – sounds familiar? But doesn't that prove my point, that GUIs change with the weather, so what is in use today will be old hat tommorrow?'

Drop us a line at Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP

Viewpoint

Opinions always seem to create friction. Of course, it would be a boring world indeed if we all thought the same things all the time, but judging by the response to some of our reviews and articles, certain opinions really set you off.

Perhaps the hardest part of editing a magazine is dealing with reviews. If we slag off a product, it inevitably creates an outcry from the company who sells the product.

On the other hand, if we write a review of a product which says it's 'worth looking at if you need this sort of application' when it plainly isn't, then any reader who buys the product and hates it is going to find it hard to believe our reviewers in the future.

That's why we try to be fair to products, and we also give companies the right to reply to reviews in these very pages. If we review a package, and decide it is really terrible, we run the review through the software house to check that we haven't got any facts wrong. Then we publish it, as a warning to our readers to avoid the product like the plague.

'Ah,' says the more astute reader among you, 'if you rip a product apart, then that company isn't going to like you much, so the chances of you getting a scoop from them in the future is tiny. And how will you persuade them to keep advertising?'

Good point. But seeing as the major players in the market don't produce turkeys that often, this isn't a problem, and as the editorial and advertising departments at *Acorn User* are totally separate, there isn't a clash.

The other area which really gets you going is that of the *other platforms*. The same phrases keep drifting around when comparing different systems; we work in a mixed computer environment, and I have honestly heard someone say 'the Atari ST really puts the PC to shame in low-cost DTP'.

Acorn fans would probably fall about laughing at that, but do we *know* that it's an unrealistic comment? Does 'the Risc PC really puts the PC to shame in low-cost DTP' make Atari fans cackle?

The problem here seems to be that people get so passionate about their own platforms, and their own products. Criticising platforms and products is a dangerous occupation: if you were at the show you can't fail to have heard people arguing that Risc OS is better than System 7, and that both knock the socks off Windows.

The point is that everyone is right to a certain extent, and in most cases it's 'better the devil you know' with software and operating systems.

So, we will continue to publish opinionated reviews, and we'll continue to let companies have their right of reply. After all, it's all for your benefit.

Mark Moxon

GAME SHOW

Welcome once again to the Games section of the magazine. If the response at the Spring *Acorn User* show was anything to go by, the number of dedicated gamers out there is growing fast.

Support for this pleasant diversion is not slow coming, with plenty of Software houses eager to produce and maintain a high standard of gaming experience for us all.

This month, instead of the regular round-up and predictions, I've decided to review some of the hardware that the average gamester should enjoy and own. The amusement factor of pushing and tapping 20 or so keys at once soon wears a tad thin.

Product: PowerPad
Price: £29.99 single, £39.99 double
Supplier: Gamesware
Tel: 0703 456523

The first joy pad from Gamesware is the Quickshot QS-182. It's being made and manufactured in the home of the mass-produced plastic item, China. Sturdy and moulded in a trendy grey, the fire buttons, direc-tional control and select slider contrast this, being a ghastly Nintendo colour-coded affair. There is programmable Auto Fire, dual control software and the unit simply plugs into the printer port of your machine. (appropriate plug supplied.)

A near full compatibility with current Acorn games is boasted and the reason is not difficult to see. The soft-ware support is outstanding with the supplied disk allowing the joy pad to take the role of all manner of selections. The Pad can be configured to act as a normal Acorn-compatible joystick – a custom layout taking the role of any number of keys and com-binations – or for the simulator fan a mouse emulator. Also supplied is a list of game driver modules for immediate support of current well-known games.

QuickShot's sturdy design with six fire buttons (two on upper quarter) and auto fire options makes it a fantastic for supporting software.

However, it's cheap to look at and hold, with the main cluster of fire buttons too close together and directional control sometimes a bit inaccurate due to the tiny diameter of the disc.

Product details
Product: Competition Pro
Supplier: Illusions
Price:
Tel: 081-997 1037

The joy pad from Illusions has some serious pedigree behind it. Not only is it made in China, again, but also the unit is a best seller for the Nintendo machine. Lord only knows how many of these units have been sold in the high streets.

It's well balanced, attractive to look at and has more switches and levers than a NASA switches and levers manufacturing machine.

Six fire buttons, all tastefully coded in the embossing, a selectable turbo fire for each, slow motion control *and* a large directional pad. Heaven. The pad comes with a very long lead which will comfortably reach under the bedclothes from the desk in the corner of the room. Software support is great too, with a totally program-mable allocation system which also accommodates sequence inputs.

Steve Atherton

FLASHBACK

Last month I was indeed blessed with the greatest platform/ adventure/ shoot 'em up of all time – Flashback. Doing the review was indeed an honour and to help celebrate my good fortune I'd like you to get a chance to experience this wonder in animation.

Yes, for the first 500 envelopes that I receive bearing the answer to a simple question I will personally send you a FREE fantastic first-level demo.

You must guide Conrad through the jungle to his ultimate goal of a meeting with the old man and a Gravity belt. Have you all the credits? Did you retrieve the Holocube? Only skill and patience will tell, so don't delay!

To enter, answer this simple question and send it to the address below. Remember, don't forget to enclose a self addressed envelope so we can send the game to you if you're one of the lucky winners.

Steve Atherton

Q The French company who developed this great game for US Gold is:

A) Cafe au Lait Software ☐
B) Garlic Software ☐
C) Delphine Software ☐
D) Le Tunnel Software ☐

Send your entries to: Acorn Useer/Flashback Demo Competition, Customer Services US Gold Ltd, Units 2-3 Holford Way, Birmingham, B6 7AX

Name: ....

Address: ....



Supplier: Gamesware
Tel: (0703) 456523
Price: £29.99

As I mentioned last month Gamesware has come up with a solution to the compilation packs that seem to be popular with software houses at the moment.

Named *Aries*, the pack contains four games and will be the first of a series named after all the signs of the Zodiac. It seems a novel solution to forfeit a number on the box, as this does date the product rather fast. I mean where's your copy of *Now That's What I Call Music 2*? I bet it sure ain't high on your current playlist.

The four games are all completely different with a platform game called *Hamsters*, a general knowledge quiz game called *Quizmaster*, a shoot 'em up called *Blowpipe* and a real brain teaser called *Square Route*.

Where do I begin? Well, I'll take them as they are presented in the instruction booklet, so first off is *Hamsters*. I won't bore you with the background story, suffice to say you play a cute furry animal that has forgotten his laser gun and must resort to hitting equally cute animals to a pulp with a large mallet.

Before I continue I should point out that this game must be taken as it is intended – that is a 'politically incorrect' game. Options available include switching on and off the blood in varying degrees, game speed and 'wibble' which is screen shake after striking something err... soft.

Verdict? Well, it's a tongue in cheek game that will offend greatly or bring a smile to your face. It plays well but I must admit I got a bit distracted after a short while.

Second up is *Blowpipe*, a sideways on scrolling shoot 'em up that certainly looks and sounds the part. You have a powerful little ship that must be guided through several levels and sub-levels of alien craft and scenery.

As if blasting wasn't enough, you must manage the on-board weaponry systems which also provide shields and smart bombs. Halfway through, and also at the end of each level, there is an opportunity to stock up on weapons and replenish lost energy at the trading posts.

There are plenty at hand as special weapons are needed to remove guardians and conquer certain situations.

Verdict? Nice chunky graphics and great game speed. This was the game I preferred out of them all – not too complicated but enough to do to keep me thoroughly occupied. Next up to the dock is *Quizmaster*, a game for up to four players who can show off what little knowledge they have on migrating paths of South African swallows or the landing wheel diameters of a Junkers Ju.

Stuart Hall has a lot to answer for in my book and these sort of games are an acquired taste. There are four rounds in a game, ranging from quickfire rounds to head to heads.

Verdict? Not bad, definitely an acquired taste. The questions did have a habit of re-appearing but that's all in the art of winning eh?

Finally there is *Square Route*, definitely the gooseberry in the pack. You must convert white squares to red in 250 levels of challenge. Are you up to it? I wasn't and quickly lost patience with the timer always running out, due to me constantly making the wrong moves.

Argggghh! Still I'm sure someone will work out what each bit does and conquer all before them. Verdict? Annoying. It kept beating me.

Overall this is not a bad compilation, though perhaps three games and a lower price tag would have been a wiser move.

These are not 'A' rated games, but then again at least they are not all a couple of years old like some 'bargain' packs around.

Steve Atherton



SCRABBLE

Supplier: US Gold
Tel: 021-356 3388
Price: £29.99

I remember this game as a child. A rather large battered old green box and an indestructible playing board that you could confidently hit your sister with without fear of damage – to the board.

Well, US Gold has converted this wonder onto the silver tube, with great regard for the original concept.

I do not admit to being a guru of the English dictionary, in fact I would say this sort of game could make me uneasy in certain company, but I soon found myself lost in vowels and 'a consonant please' before very long, giving that nice man on *Countdown* a reason to acknowledge my existence.

Once you are familiar with the board and the general rules, the game gets very involved.

Okay, you may not have such a great grasp of the obscure words but to be honest you don't need them as, true to the original, a stuck player can quickly become unstuck with the aid of a quick reshuffle or the odd tile exchange facility.

Four game speeds are available limiting total game time rather than move time. Twenty-five minutes is the maximum while the 'Lightening' option provides a mere five minutes to spread your offerings across the board.

Help is on-hand with handicapping available in this option, therefore limiting the urge to hammer an opponent well and truly. The computer refers to the 12 settings you have defined and acts accordingly, with both strategy and total play gain in mind.

It's difficult enough to stay one move ahead let alone the three or four that the computer does for you on the most helpful setting.

These settings soon backfire though, as selecting to play against the computer in these modes can lead to a high-scoring game – though you will probably have little to do with anything at all.

It really is hard to say any more, except that the result is highly polished, uncannily accurate and will no doubt leave many of the accomplished players in the real world struggling for an edge. Up to four players can participate, with human or computer options for each. Try picking four players – all computer and on the hardest setting.

You may learn a thing or two, especially because you know they won't cheat by making up non-existent words or using Names and Places to put one over on each other.

This is an excellent reproduction, though strictly an acquired taste, as four people sitting around a monitor all looking away at the correct moment of play can be a tad chaotic.

Steve Atherton



Supplier: Michael Elson
Address: 25 Lyttons Way, Hoddesdon, Herts, EN11 9NH
Price: £5

This game has been created for the love of a machine, the chance of fame and the satisfaction in doing fellow users a service.

A service indeed, as *Fyarena* is really a great little game. It is instantly playable with bright, cheerful graphics and some stirring music to help you along. You must guide your character around 36 levels killing baddies and assembling a picture made from tiles that you must acquire through the gaming arenas. Sounds easy? Think again.

The baddies are generated by machines which keep churning out the pests until destroyed and the picture you must assemble from memory is not simple.

The craft or 'character' you pilot is capable of autofire and a life saver called 'twenty-way fire.' Also included for added safety is a shield which will withstand shots and knocks off the scenery – though be warned there is only so much energy to burn!



This game is a cross between certain parts of the *Crystal Maze* and *Gauntlet*. A timer clicks steadily away with penalties incurred if the picture tiles are not placed in their respective positions.

It all adds up to a bright little game that at £5 will give you value for money and many hours of enjoyment.

The levels and challenges get tougher and tougher though, fortunately for me, not impossible to conquer. I will admit to using the password codes the programmers kindly slipped in the box for me.

Steve Atherton

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"Technodream's action gets so fast and furious the screen looks like an abstract painting. A highly polished product and well worth the asking price of £25."
...BBC Acorn User (May 93)

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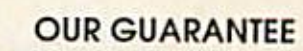
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Computer Concepts and Archimedes World are proud to jointly announce the launch of *the* 1994 clip-art competition - a competition open to anyone wishing to enter, submitting artwork (not sprites) produced in any graphics/drawing program available for Acorn RISC computers. The fantastic first prize is a new Acorn Risc PC, and there is a special Best ArtWorks Entry prize (a Pioneer CD ROM drive) and a string of runners-up prizes. So hurry and get those creative fingers moving ... you have until 31st July 1994.
Full details and an entry form are available from Computer Concepts.
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OPEN TO ALL DRAWING PROGRAMS ON ACORN RISC COMPUTERS
ROLEX



MAGNETOIDS

Supplier: Oregan Development
Tel: 021-353 6044
Price: £24.95

After reviewing an early demo version of *Magnetoids* in the March issue of *Acorn User*, I was interested to see the finished version on display at the *Acorn User* show.

Despite their product being one of the more exciting releases at the show, Oregan Developments is still regarded as a fairly small player in the games world, so how does their latest assault on the market square up?

After breaking open the rather dull packaging, I quickly installed the single disc of code onto my hard disc, only to find that you need to have the floppy disc in the drive to run the game anyway.

The intro consists entirely of fading up a small Oregan logo before the game has loaded, proving again that the idea of good presentation and interesting intros only reach the Arc in the form of conversions from the Amiga.

A whole page of the manual has been devoted to the 'plot' but it's much easier to see from the game itself that this is actually asteroids in 3D.

The game begins after accessing a small options screen which allows you to choose between two different ship types and select either mouse, keyboard or joystick control. As your ship slides smoo-thly onto the screen the action starts instantly, as a magnetoid (a big chunk of rock that's attracted to your ship) appears in front of you and proceeds to bear down on your unprotected craft with alarming speed.

The idea is very similar to that old arcade favourite, with spinning chunks of rock that split up into smaller shards and must be dispatched with your laser gun before they hit you. The difference is that *Magnetoids* is in 3D, which means that the meteors come at you from all directions.

Several types of enemy space-craft have also decided to harass you, and most are pretty accurate with their own laser cannons. Just when you're getting to grips with the asteroids, a few sharp blasts of laser send you reeling into a spin.

The shots from the other ships are very realistic and certainly add to the atmosphere. All the graphics are light sourced from the nearest star, giving a much more realistic appearance than in *Elite*.

Taking out enemy ships occasionally leaves behind a power up. Collecting these temporarily enhances your ship with rapid fire, shields, extra thrust or even a pack of guided missiles. These make the job of destroying the enemy ships easier, but still ensures that some targeting is required. On-screen displays include score, current power ups, and a radar that David Braben might just recognise from somewhere.

As well as the mix of standard magnetoids and ships, several special enemy types are introduced on later levels. A gigantic mega-cannon on level nine provides quite a challenge by slowly turning on you, then firing off whole magnetoids at high speed.

Magnetoids is a simple no nonsense shoot 'em up in 3D that runs at a reasonable speed on Arm2 machines and is more impressive in Arm3 mode. As far as initial gameplay is concerned *Magnetoids* scores well.

The only real problems with the game are the lastability and fairly high difficulty level. After playing through the first few levels and being forced back to the start again and again when the lives total reached zero, I wasn't really over enthusiastic about coming back to the game.

I'm a big fan of 3D vector space games but the structured layout of the levels, which always remain the same, tended to put me off.

I don't want to be negative about a fast arcade blast that's full of action, but perhaps a few more ships to choose from, a bit more variation and a password system to access completed levels would have kept me coming back for one more go.

Paul Wheatley










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JAYNE MORRIS

The last great heroes?

Philip Ensor reveals the strange world of Acorn Dealers

Not very many years ago (about 15, to be more specific) computer dealers did not exist. These days, if you own an Acorn computer, you will have bought it either from a large multiple, such as Argos, John Lewis or Dixons (during one of the fleeting periods when they were selling Arcs), but more likely, it will have been bought from an Acorn dealer.

An Acorn dealer is a special breed, with the ability to survive on little or no margin, work 26 hours a day, find friends and relatives that work for nothing and bankers with a greater sense of benevolence than Mother Theresa.

So why do they keep the faith? What keeps them going? This article looks at the changes in the industry that lead to the establishment of computer dealers, deals with the particular differences in selling Acorn products and examines the love/hate relationship that sometimes exists between the dealer and the originators of the products sold.

Before the beginning

Right at the beginning of the computer industry, during the early '50s, it was thought that the entire world market for computers could possibly be about ten a year for the military and for academic research – certainly not for business applications (and as for home use, only in the realms of lunatic science fiction writers).

About a decade later, International Business Machines launched its Series 360 mainframe range, and the rest was, as they say, history. IBM became bigger than most governments around the world.

Its market share and revenues (not to mention profits) approached, and occasionally exceeded, the total for all other computer manufacturers combined for most of the 1960s, '70s and '80s, bringing forth the industry adage: 'no-one was ever fired for buying IBM'.

This power to lead the market and to set *de facto* industry standards was of enormous significance during the establishment of the PC market in the early 1980s.

For about twenty years, a sort of golden age of prosperity ensued. IBM was joined by other manufacturers, forming an exclusive club. They were American and were known as IBM and 'The Bunch' (Burroughs, Univac, NCR, Control Data and Honeywell). There were also a number of significant European players such as ICL (UK), Bull (France), Seimens and Nixdorf (Germany).

Their markets were growing around the world, the mythology and FUD (fear, uncertainty and doubt) factors surrounding computers ensured customers didn't ask too many

awkward questions, your computer supported any standard you wanted it to – providing it was proprietary and tied you to the manufacturer concerned (apologies to Henry Ford) – and any software you wanted you had to write yourself (of course, your helpful manufacturer would do it for you, for a fat fee).

Finally, your computer needed a dedicated environment and expensive staff to run it. A computer was a kind of corporate virility symbol, with an entry level price in the tens of thousands of pounds.

So, the customers were corporate not personal, and computers were low volume/ high value products with large margins for the manufacturers.

Typically, the gross margins on hardware were about 80 per cent on medium and large systems sold at this time. As a result, all of the computer manufacturers employed direct sales forces, on large salaries, and equipped with company cars and expense accounts, and sent them forth to bring in the business.

The reason why it is not as effective to do this with small systems, and the reason why the older suppliers are suffering so much even though many of them are also players in the PC world, is because of the effect on prices and profits.

Consider a $1 million mainframe sale with a gross margin of 80 per cent. This provides a gross profit of $800,000. If a Unix-based mini is sold at $100,000 with a margin of 50 per cent, the GP will be $50,000, but if a $2000 PC is sold at a margin of 30 per cent, the GP will be $600.

To replace $1 million of mainframe sales, the manufacturer would have to sell 16 minis or 1500 PCs to earn the same GP. This is the size of the task facing the old suppliers.

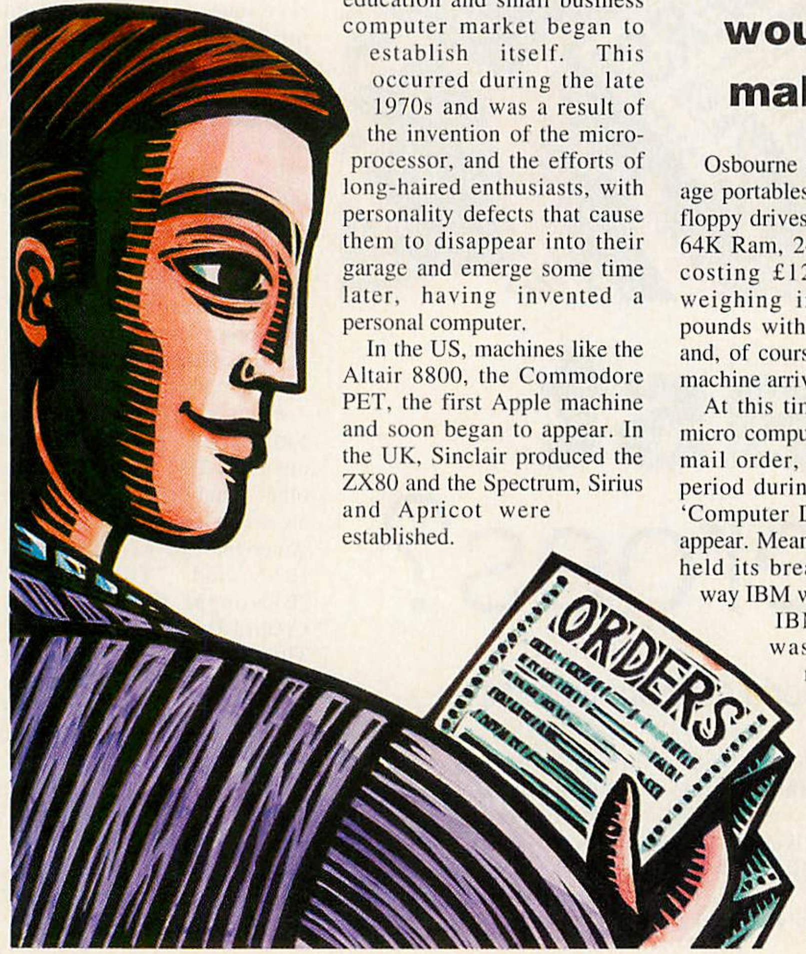
To make matters worse, apart from the large internal sales forces, there are teams of field engineers, research labs and bureaucracies to support and maintain.

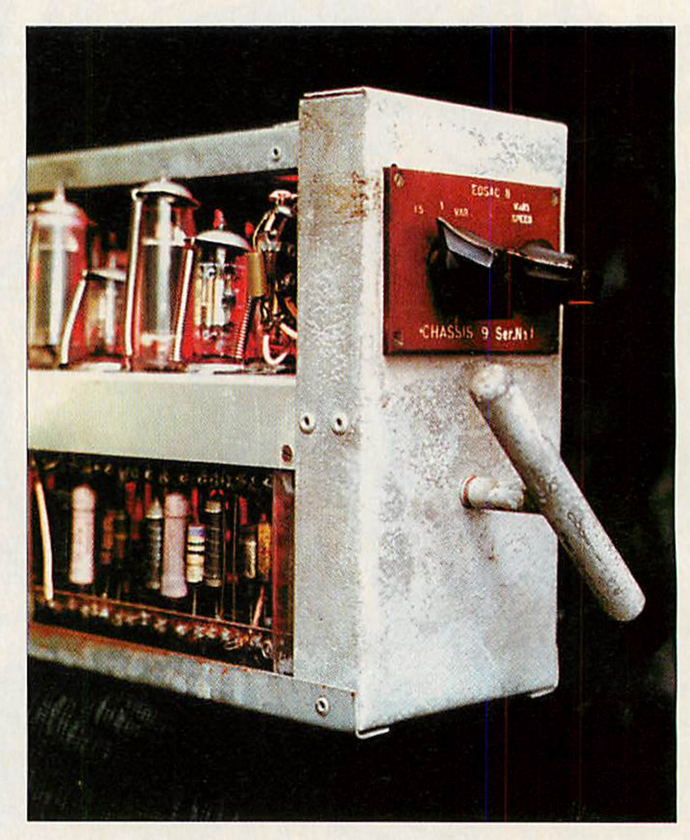


Enter the dealer

Some years later the home, education and small business computer market began to establish itself. This occurred during the late 1970s and was a result of the invention of the microprocessor, and the efforts of long-haired enthusiasts, with personality defects that cause them to disappear into their garage and emerge some time later, having invented a personal computer.

In the US, machines like the Altair 8800, the Commodore PET, the first Apple machine and soon began to appear. In the UK, Sinclair produced the ZX80 and the Spectrum, Sirius and Apricot were established.





The sort of technology available before the dealer came along

> **Those whom the Gods would destroy, they first make computer dealers**

Osbourne was selling stone-age portables (with two 5.25in floppy drives, Z80A processor, 64K Ram, 24 row 5in screen, costing £1250 + VAT and weighing in at (gasp!) 24 pounds without battery pack) and, of course, the first Acorn machine arrived.

At this time, most of these micro computers were sold by mail order, but this was the period during which the first 'Computer Dealers' began to appear. Meantime, the industry held its breath to see which way IBM would jump.

IBM watched what was happening, misunderstood it completely, did not take it seriously, and decided to buy in (non-exclusively, with hindsight not one of Big Blue's smartest decisions) the technology, both a non — IBM processor chip from Intel, and an operating system called DOS from Bill Gates' fledgling Microsoft.

There were better technologies around – there still are – but such was IBM's power to lead the market, that after the PC was announced all other micros were marginalised, with some very notable exceptions, including Apple, Commodore and Acorn.

So, at this time, dealers began to establish themselves, even though most manufacturers had a mail order operation, and some, like Sinclair, sold only by mail.

A flick through a computer magazine from September 1982 reveals a thriving network of dealers offering aggressive prices on the products of the day.

Many of the ads look identical to the sort of layouts and phraseology that would be seen in any contemporary

magazine.

The principle differences are in the capacity and pricing of the products then available. A useful rule of thumb often used is the cost of memory per megabyte, which in 1960 was approximately $1,000,000 per Mb, reducing to $100,000 by 1970, $1000 by 1980 and $100 by 1990. It is now close to $10.

The other significant difference is that £500 or £1000 in 1982 was worth more than it is in 1994 and the dealer was able to keep more of it in terms of margin. Computers had yet to become the sort of commodity items they are today.

Additionally, the more bang for your buck principle tends to mean that the dealer has to sell more and more products to maintain revenues, and the margins on computer hardware have been declining for years.

The Risc PC, for example, has greater power, speed and expandability than the old A5000, yet it compares favourably with it on price.

The difference

An Acorn dealer is like any other computer dealer in most ways – they cannot control the price at which they are forced to buy from the suppliers as they don't originate the products that they sell; the price at which they are forced to sell to stay competitive, because the market looks after this; the pace at which new products are announced so finding themselves left with old stock; nor can they control the pace of technological development, which is up to the boffins, especially in the US and Japan.

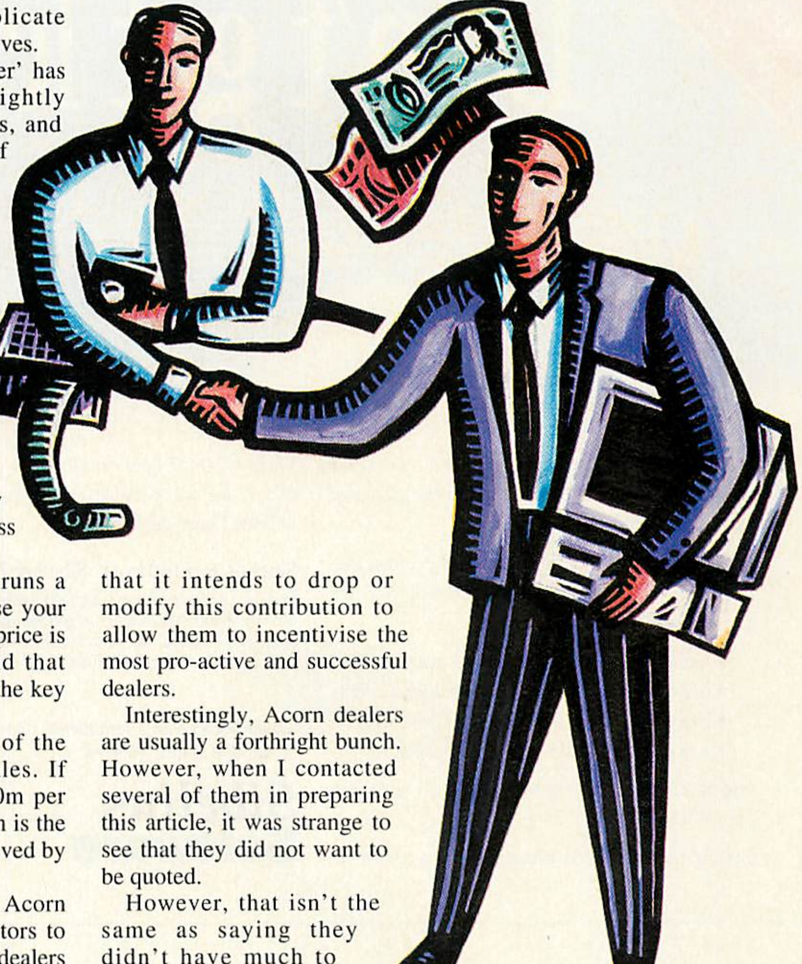
However, in the case of Acorn, Arm Ltd. in the UK has a strong input here. About the only significant area the dealer can control is costs in terms of salaries and overheads and so on.

But in the case of the Acorn dealers , they also have to spend a large part of their lives jumping through all the hoops about 'does it run Windows?', 'is it a 486?', 'is it industry standard?', 'they're only an educational supplier', 'nice machine, no software'.

Now, of course, all dealers soon learn the appropriate responses to deal effectively with all of the above, but it does serve to complicate (further) their business lives.

The very word 'dealer' has unfortunate and slightly unsavoury connotations, and creates images of possibly unscrupulous Arthur Daly-esque characters peddling shoddy goods to the unwary.

The reality is that most computer dealers, especially in the Acorn world, provide an honest service at the sticky end of the business, and if they didn't, they wouldn't stay in business very long.



The 1982 magazine runs a feature on how to choose your dealer, and advises that price is not the only issue, and that service and support are the key to success.

Let's look at some of the facts behind dealer sales. If Acorn sells around £50m per annum, then £30m-£35m is the sort of sale portion achieved by the dealers.

By the end of 1992, Acorn had reduced its distributors to one, supplying indirect dealers with retail products only, and had reduced the dealership network to 50 or so direct, or Authorised Education Dealers, who are supplied directly from Cambridge. This allowed Acorn to improve the margins to the dealers (and, possibly, to itself).

The differences between machines for education and machines for retail are, in essence, either cosmetic or to do with the software bundles they are supplied with.

So, a quick calculation indicates that £35m divided by 50 is about £700,000 a dealer. However, if the more successful dealers sell much more than this, then some dealers must, obviously, sell much less than this.

From the point of view of the dealer, achieving Education Dealership status with Acorn means that a special contribution, paid for every education machine sold, can be claimed, forming part of the profit margin.

A non-Education Dealer cannot sell into that market because it is uneconomic to do so. Acorn has made it clear that it intends to drop or modify this contribution to allow them to incentivise the most pro-active and successful dealers.

Interestingly, Acorn dealers are usually a forthright bunch. However, when I contacted several of them in preparing this article, it was strange to see that they did not want to be quoted.

However, that isn't the same as saying they didn't have much to say.



The dealer's story

As we have seen, dealers are usually smallish organisations that work very hard to survive on what they perceive to be too little margin.

They feel that they are not told enough about new products and strategies both from Acorn and other suppliers, and that there should be greater opportunities for exchanging ideas.

Many feel it is unfair that some larger dealers are prepared to cut their margins to the bone to chase business, thus setting a new market rate which they are then obliged to follow.

They want Acorn to police the sale price more strongly, although they recognise that there is little that can be done without falling foul of restrictive practice regulations.

The suppliers' story

The suppliers feel that the more margin they allow the dealers, the more they will pass onto their customers.

Not necessarily a bad thing, you might say, but it is felt that surviving on selling machines at very few pounds above cost amounts to eating the seedcorn, leaving no money for marketing activity and other business development ideas.

Acorn is keen on working more closely with dealers in formulating marketing plans and activity.

Acorn sits at the centre of a £300 million segment of the economy, and several thousand people depend on both the suppliers and the dealers in the Acorn world for their livelihood.

If, in the diplomatic parlance, full and frank discussions are required from time to time to ensure that things are being done properly, then they should be welcomed by all sides.

One thing's for sure, no one owes us a living, and it is an even colder world out there in the PC market.

SUZANNE DEAKIN



At your service

James Harrison ventures deep into Acorn territory and meets the people at the end of the yellow brick road: Acorn Customer Services

Whether you're an IT co-ordinator charged with the well-being of 100 Acorn computers, a devout Acorn enthusiast with a brilliant idea for Risc OS 4, or a professional programmer, it is inevitable that at some time or another you're going to need help.

Perhaps you want advice on how to use a printer whose manuals are written in Serbo-Croat, or classes are about to start and the school's network has called in sick. Even programming wizards need answers to questions such as 'Am I just being stupid, or is this a real bug?'. Where do you go to get this help?

You hold in your hands both the most and least accessible source of advice – the computer magazine. Together with the computer's manuals, a magazine can provide the answers to a multitude of questions.

However, Murphy's Law guarantees that the issue containing the answer will be the only one missing from your 12 years' worth of lovingly preserved back issues.

Next stop, your local dealer. In order to become an Acorn dealer, a company has to commit itself to providing the highest level of customer support.

In most cases these dealers will bend over backwards to help you, provided you give them an easy problem. Ask them to support a product they didn't supply, and there's a good chance they'll be less than enthusiastic. Who do they turn to when they don't know the answers themselves?

Before anyone accuses me of being totally uncritical about dealer support, or the lack of it, I'll freely admit that not all Acorn dealers are perfect. How many times have you phoned the support person at your dealer, only to find that you don't seem to speak the same language?

Talking to Acorn

If you are fortunate enough to own a modem and you've successfully negotiated connecting it to your computer, then you'll probably find most Crystal Maze challenges a doddle. You'll also be able to chat to thousands of other Acorn owners, sharing problems and solutions.

Certain 'special' categories of Acorn customers have the status and, some might add, clout, to request and receive some support directly from Acorn. So who enjoys this privilege? The list is quite long: education centres, Acorn authorised dealers and support agencies, registered software and hardware developers, and YOU.

Hidden away in the dark and dingy depths of Acorn's headquarters (actually the light and airy second floor, but the former sounds more exciting) is one of Acorn's most important departments – the Customer Services Group.

Customer Services, headed by Alastair McGregor, is a team of nine people whose mission is to make the customer happy. The group is divided into two sections: the Technical Team and the Customer Information Team.

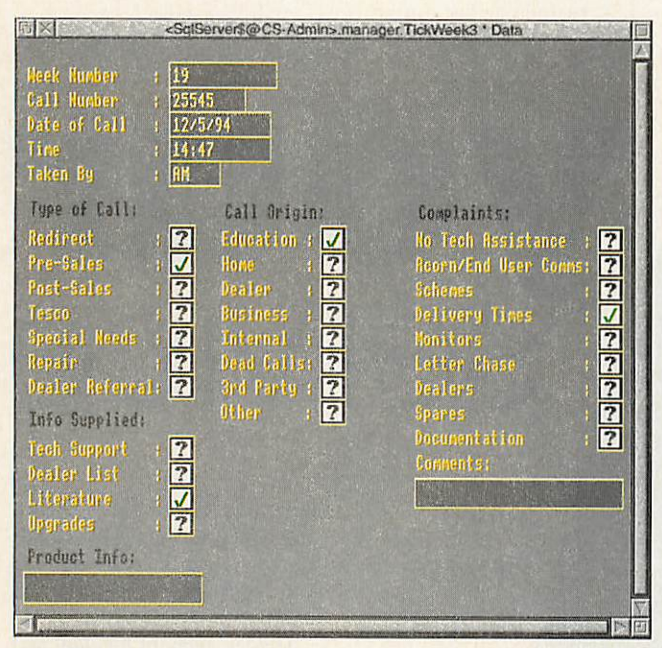
From 9am to 5pm for 51 weeks of the year the group tries to act as the champion of the customer. It's got a pretty impressive record as far as being contactable is concerned. When Acorn moved house last year, Customer Services was off-line for only one-and-a-half days.

The team's aim, according to Alastair, is 'to offer support to every single Acorn user in the world'. He admits that this is no small undertaking – almost one-and-a-half million Acorn systems have been sold worldwide.

But does Customer Services want every Acorn user to phone them whenever they have a problem?

'No way,' says Alastair. 'We don't have the resources to offer an end-user technical support line and we unfortunately can't encourage users to call us for instant solutions to all their problems.'

So how does the end-user get support from Customer Services? In order to provide



The call-logging database used at Customer Services

high-quality support with limited resources, Customer Services tries to run a 'layered' support system.

The way this works, in theory, is that you ask your dealer or education centre for help and they will in turn contact Customer Services for advice if they can't provide the answer.

Sounds good. In practice, says Alastair: 'it can be very difficult for us to offer the level of technical support that our customers require through our support channels.'

Don't phone. Write

Should you find that your dealer is unable to help for whatever reason, you can approach Customer Services directly.

Since Acorn is the last place you can turn to, Customer Services will never refuse to help.

As Alastair says: 'We want to provide the facilities for customers to contact the company and get a good response.'

How you contact them is very important, though. If you want to get comprehensive support and advice, don't phone. Write.

All Acorn users are welcome to write to the group, whether it be to ask for technical advice, make a complaint, give praise, or enquire about a specific product or the location of a local supplier.

In case you're wondering how long it takes to get a reply out of them, the team members are proud of the fact that they respond to the majority of all queries within a couple of days.

If a query will take more than a week or so to sort out, they will write to you to let you know that they're working on your problem.

There is a telephone hotline available for end-users, but this should only be used for obtaining advice about products and availability, dealers and Acorn schemes – the Tesco offer for example. The classic query received on the hotline is along the lines of 'I hear you're launching a new product'.

Customer Services offers two complementary types of service and support. The team members spend much of their time providing 'reactive' support, either through the many service centres or directly to the end-user.

They receive telephone calls and letters from all over the world. Recently an English teacher in Naples phoned the team for help with her school's network. Alastair has found that Scandinavian Acorn users are the most prolific of the overseas callers.

Its primary function however is to create pro-active support materials for its nominated support channels. Pro-active support? Translated into English this means predicting questions before they're asked and providing answers to them.

The answers

The Acorn Customer Services Newsletter, available to the support channels, IT centres and so on, is its main form of information dissemination.

Among other things, the newsletters contain answers to the most frequently asked questions, such as, 'Why won't my Archimedes A410/1 read my friend's A5000 discs?'

Equally important are the Support Group Application Notes. At last count there were 257 of them, all written by members of Customer Services' technical team.

Recent titles include 'Using the Psion Series 3 Serial Link with the PC Emulator', 'Risc PC Advanced Configuration for Use in a Hard Disc or Network Environment' and 'Connection of Monitors to Risc OS Computers'. These notes can be supplied on request, but don't write to Acorn asking for all 257. They'll politely recommend that you select only those you really need.


The Customer Services Team

The application notes are available in several forms and from several sources outside Acorn, and Customer Services can supply them printed or on disc as text and *Draw* files.

You can also obtain them from all major Acorn bulletin board systems, and Internet. Information from the support notes is also regularly used in the hints and tips pages of Acorn magazines.

The Customer Services bulletin board is a private system open only to dealers and registered support centres.

Sysops of other Acorn bulletin boards also have access to this BBS, from which they can download the application notes and make them available on their own systems.

This includes updates of Acorn modules and other free, but not public domain Acorn applications, such as printer drivers.

The Lab

Located next to the 'people area' of Customer Services is The Lab. Bristling with computer equipment, this room could also be called a museum of Acorn history.

It's the 'lids off, hands on' room, and every product currently supported by Acorn is present. There are even several items of historical interest.

An Acorn Atom relaxes on a top shelf, enjoying retirement and gazing down on its illustrious offspring.

It is in this room that the technical team tries to replicate customer problems and provide cures.

In many cases, if they don't have the resources available inside the company, for example a specific model of printer or monitor, they'll contact the supplier or manufacturer to find out why the equipment isn't doing what the customer expects it to do.

Next month we'll meet the team behind the support, and find out just how they all those queries.



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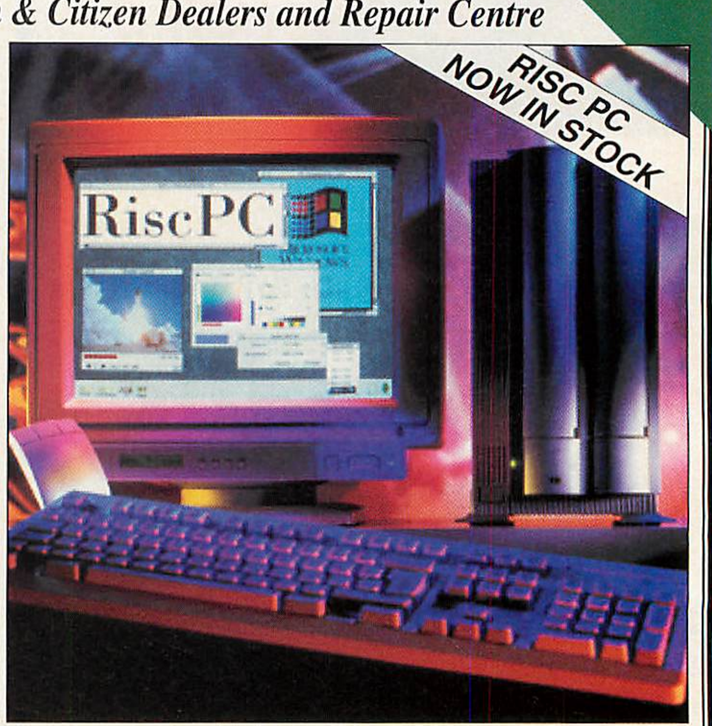
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A3010 4 Mb	£131.87	£154.95
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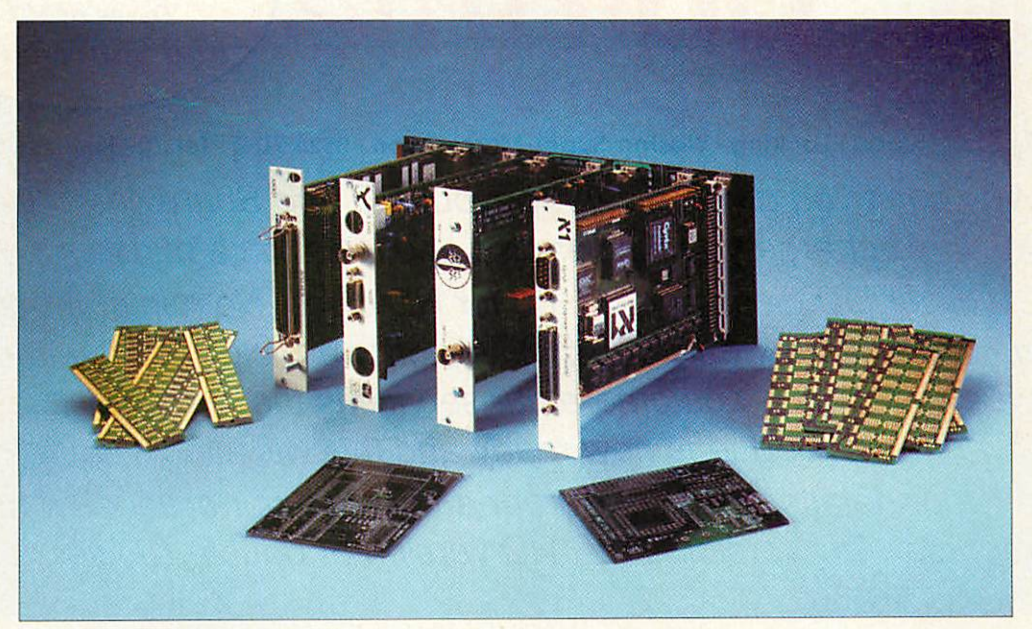


Part Exchange Scheme Available

Plug and play

Upgrading the Risc PC is easy, but there are still some pitfalls to avoid. Mark Moxon looks at adding more expansion slots and more memory to your new machine

Probably the most common comment about the Risc PC at the *Acorn User* Show was 'what a great case'. There's no doubt that Acorn has built the Risc PC to be expanded quickly and easily, but before you leap out and stuff your backplane full of expansion cards and your SIMM sockets full of megabytes, make sure you know what you're doing.



The eight-slot backplane, various SIMMs and network cards

8-slot backplane

Acorn's new DEBI (Dynamic Expansion Bus Interface) expansion system is a vast improvement on the previous one. For a start the interface has a 32-bit wide data bus, which means that data transfer between cards and the computer will be four times as fast as an 8-bit expansion system (as on the A3000) and twice as fast as the 16-bit system on the A5000. Cards like digitisers and sound samplers, which process large chunks of memory, will benefit most from this.

The next improvement is the ability to fit an additional 16Mb on the card. Previous cards were limited to having just 4K of memory visible on any Roms on the card, and you had to change a page register to view the contents of your Rom in 4K chunks. Now the entire 16Mb space is accessible in one go for both Roms and hardware.

Another advantage is the inclusion of Dynamic Memory Access (DMA) for at least the bottom two cards. DMA allows the card to transfer blocks of data into system memory without having to hold up the processor while the transfer is done, speeding up data transfer between the system and the card.

Expansion cards can also have a wider range of access cycle times, meaning the backplane is less of a bottleneck in the system, and with a faster data transfer rate of 8Mb/sec and Intel-compatible control signals, the system is quite a lot faster than it was before.

For those of you hungry to fill every one of the eight slots possible in a four slice Risc PC, you'll need an upgrade kit available from Atomwide on (0689) 838852. The kit consists of a six-layer, eight-slot backplane, which allows DMA to the bottom two slots, and has high-speed buffering of data and address lines.

The kit also contains a second power supply, all the brackets and screws necessary to hold your four-tier tower together, and the extra slices themselves. Hopefully the upgrade will be in the region of £299 + VAT, but the price has yet to be finalised.

One final point on expansion cards. Some older cards may not work straight away on a Risc PC, especially if they are not expecting to be in a slot number outside the range 0-3. Check with the manufacturer for compatibility.

Memory

DRam is provided by SIMMs (Single In-line Memory Modules). These little plug-in boards have been around for quite some time in the Mac and PC markets, and the idea is that you can pop along to your PC dealer and pick up some more memory for your Risc PC for a knock-down price.

That's the theory, but there are some important points to consider.

First, you cannot have more than 16 chips on one SIMM in your Risc PC. If you have more, then the chips put on the system may be too much if you have a co-processor fitted, and an overloaded system may not work: you have been warned.

Other points to note are that the chips should be 70nS or faster, the SIMM should be 32-bits wide, and the physical dimensions must be correct. On some SIMMs the chips on the underside are too close to the connector, and won't fit into the slanting socket on the Risc PC.

Finally, bear in mind that there are two ways of referring to the capacity of a SIMM. The first is the actual memory you will end up with in the desktop, and can be 2Mb, 4Mb, 8Mb, 16Mb, 32Mb, 64Mb or 128Mb; the second refers to the number of Kilobits per data line, so what is referred to as a 2Mb SIMM may in fact be 2Mbits per line, giving 2M x 32 Kbits = 8Mb on the desktop.

So, if you're buying a SIMM from a PC dealer, ask the following questions:

- How much does it cost?
- Is the number of chips ≤ 16?
- Is the memory speed ≤ 70nS?
- How much memory is actually on the card?
- Can I get a refund if the SIMM doesn't fit my machine?

Networking

The final way to expand your machine is to add a network card. These are much smaller than normal expansion cards, and the enhanced expansion system means that their performance is improved.

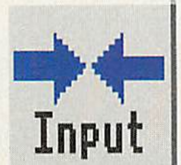
Companies such as ANT Ltd (through Atomwide) and SJ Research can provide cards for various networks; for more on types of network, have a look at our Network section starting on page 33.

In brief

A superior anagram-generating program and a package to allow you to connect your Archimedes to a Z88

Supergram

Supplier: William Tunstall-Pedoe
Address: PO Box 395, Cambridge CB3 9PJ
Price: Standard edition (80,000 words) £12, Professional edition (130,000 words) £34.95. Site licences available.



We've all seen anagram programs. There was a very simple one given as an example in our Back to Basics feature a few months ago. They're entertaining for a short while, but nothing new. This one's different. For a start, *Supergram* only finds anagrams which are composed of real words. It then grades them intelligently according to how suitable it thinks they are to the subject.

Then it lets you select and rearrange my favourites, and save them out to disc. When I input a name or phrase for *Supergram* to find anagrams of, I can give the program selected information about the anagrams I want it to find.

I can tell it to find flattering or satirical anagrams, whether to use certain types of words – parents and teachers will be pleased that the program can be configured not to use vulgar words and phrases – and the sex of the person whose name is about to be put through the mincer.

Supergram also allows the list of subwords to be scanned and particularly appropriate words to be marked as such.

This is a very useful feature – a little time spent here will pay dividends when *Supergram* selects the anagrams it considers most appropriate.

There is no doubt that it will be invaluable to crossword setters and solvers alike, but it has a much wider appeal.

Once you have tried it on your name, your friends' and relatives' names, your local newspaper and anything else that springs to mind you will be hooked, and will return to it again and again.

Finally the manual is clear, informative, and made me laugh out loud. How many other programs could I say that about?

David Matthewman

Z-Link II v1.00

Supplier: The Really Good Software Company
Tel: (0582) 761395
Price: £24.95
Requires Risc OS 3.10 or later

Remember Clive Sinclair's portable, the sub-1Kg, A4-sized Z88, whose keyboard was a dream for rubber fetishists or anyone wanting to type silently? The Really Good Software Company does, and by releasing *Z-Link*, creates an entirely new category of program – nostalgiaware.

Back in 1988, the appeal of battery-powered BBC Basic made the Z88 the ideal second computer for Archimedes and Beeb owners, resulting in many magazines adopting it as an honorary Acorn machine.

The Z88's inbuilt import-export software and RS232 port enabled users to transfer files to and from their main machine, which only needed to run a simple Basic program to complete the link. Z-Link II aims to do a similar job, but as a proper Risc OS desktop application.

Connecting the Z88 to the Arc requires a serial cable, and wiring diagrams are included as a Drawfile on disc for the solder-competent. Starting *Z-Link* installs it on the icon bar, but not before briefly changing screen mode for no apparent reason, causing the whole desktop to redraw in an annoying manner.

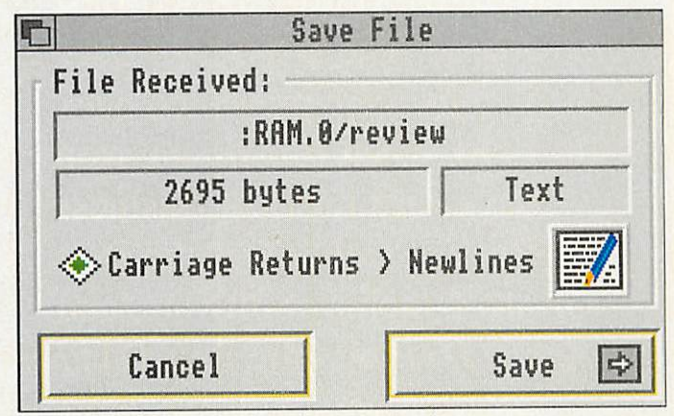
Text beneath the icon indicates link status, and clicking on it produces a dialogue window giving a more detailed description, although this soon becomes lost beneath other windows as subsequent clicks won't bring it to the top.

Selecting serial baud rate from the set-up menu is slightly peculiar as there are two 'default action' buttons, *neither* of which actually responds to the return key.

Copying a file to the Z88 couldn't be easier. Simply drag a file or directory from a Filer window onto the *Z-Link* icon, and it's transferred across in the background.

Strangely, it doesn't support wimp transfer, meaning files saved directly from applications are ignored. Multiple file selections are also disregarded, whereas directories work fine, the status dialogue describing each as it's sent.

Although *Z-Link* can transfer both text and *PipeDream* files, it doesn't support top bit set characters.



Will the *real* default action icon please stand up?

The manual claims that this 'shouldn't affect day to day operation', but in practice it means you can't transfer text files with accented characters, nor Basic programs.

Trying to send a file back the other way caused problems on the Risc PC, despite the first page of the manual suggesting that it should work. As soon as the Z88 started sending, *Z-Link* gave the helpful message 'Bad Memory Access' before quitting.

Contacting the author, it became apparent that *Z-Link* was accidentally trying to write to zero-page (which isn't allowed on an Arm600) and a fix was promised. Switching machines, the Z88 was able to send files successfully to an A5000, which on completion popped up a dialogue box describing the received file.

Despite using an icon to indicate the filetype, actually saving the file required a Select-click on the 'Save' button to pop up another icon to drag to a filer window.

At times, these examples of a quirky user-interface make *Z-Link* feel like a piece of Public Domain software. However, the author has promised to address the problems, so check with RGSC for a later version before buying.

Sean Sollé

NEXT MONTH IN ACORN USER

The Acorn User Awards

Voted for by you, the readers, we present the Acorn industry with the *Acorn User* Awards for twenty categories including Best Business Software, Most Innovative Hardware and Best Game. The last *Acorn User* Awards were presented back in 1990, when *Pipedream* won the award for Best Business Software, *Atelier* was the Best Art/ Graphics Software, and *Acorn DTP* was the Best DTP/ wordprocessor. Times have moved on, so don't miss next month's winners and runners up. It's better than the Oscars.

PLUS

Classroom control

In a special seven-page section dedicated to control software and hardware in education, we'll be taking a look at simulation software and the hardware you need to add to your machine to control the outside world.

C for yourself

Just when you thought *Acorn User*'s programming tutorials were coming to an end, our resident C guru starts a new series which will teach you how to program C applications for the desktop from scratch.

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The Internet – an evocative and poetic name for a massive collection of files connected together by phone lines, but that's all it really is.

Such is the awe in which computers are held by the public however, that Internet tends to trigger off associations with the Cyberspace worlds of William Gibson and The Lawnmower Man.

This feeling is reinforced by TV programs such as Tomorrow's World and The Net, where computers are shown downloading multimedia presentations in real time.

Unfortunately, Internet on the Archimedes hasn't progressed this far. What software there is enables users to download and upload files, but any processing of these files – replying to bulletin boards or mail, or viewing pictures – has to be done by other programs.

The software is fiddly to set up, comes with sketchy instructions and has a few 'features' – bugs to you and me.

On the other hand it is free and works very well once you get the hang of it. Getting onto Internet is not easy – don't let anyone tell you otherwise – but perseverance pays off.

In order to use Internet, you will need a site name. Most sitenames belong to large organizations or networks – cconcepts.co.uk (Computer Concepts), for example, or phx.cam.ac.uk (the mainframe at Cambridge University).

The easiest way for an individual to get a sitename is via Demon Internet Services (DIS) who, for a fee, will allocate anyone who applies a unique sitename – we are acornusr.demon.co.uk.

Once you have this, you will be able to use a modem to dial up one of the ever-growing number of DIS Points of Presence (POPs) around the country, and log in to Internet.

Gateways

Internet expects each site to have individual users, since many sites will themselves be gateways to a large network of machines. I am david@acornusr.demon.co.uk, for instance.

However, there is nothing to stop a site having only one user, and in fact this is common for DIS customers.

Another important point is that Internet does not know your site as jobloggs.demon.co.uk but – Prisoner style – as a number, called your IP address.

IP addresses have a format [152.158.1.69], four numbers separated by fullstops and enclosed within square brackets. Having got a DIS account, you should log on once to set your password, at which point you will be told this address.

Remember it, you will need it later. Normally Internet sites can be addressed by using their names rather than their IP addresses, but it is worth remembering that the name is always 'translated' into an IP address so that Internet can find the site.

Internet – through Demon – communicates with your Archimedes using a protocol (language) called Slip. Unfortunately, Slip bears no relation to ASCII, and so standard terminal emulators such as *Hearsay* don't understand it.

The main program on the Archimedes which understands Slip is *KA9Q*, a public domain program ported from other platforms.

Conversion

So, using a modem and the phone line, Demon sends Slip codes to *KA9Q*, which interprets them into something you and I will understand.

Any commands we give to *KA9Q* – 'send me such-and-such a file' or 'queue this mail message' – are interpreted into Slip and sent to Demon, which passes them on – in a different format again – to Internet.

All this conversion of information from one format to another can be a bit mind boggling, but it is necessary so that the Internet can talk to as wide a range of machines as possible. All that is needed is native software on the machine that can understand Slip.

In the 'what you need' column opposite I describe the other software you require besides *KA9Q*. You need this because, with mail and news, *KA9Q* simply transfers files back and forth between Internet and your hard disc. Other programs read and reply to the mail and news.

This will come as a surprise to users of other bulletin boards, who are used to being able to do such things 'online'. However, the news and mail reading programs will happily multi task with *KA9Q* while it is in the process of doing the transfer, so you can effectively reply 'online'.

All the programs in the Internet suite require extensive setting up. This usually involves manually editing

Using Demon

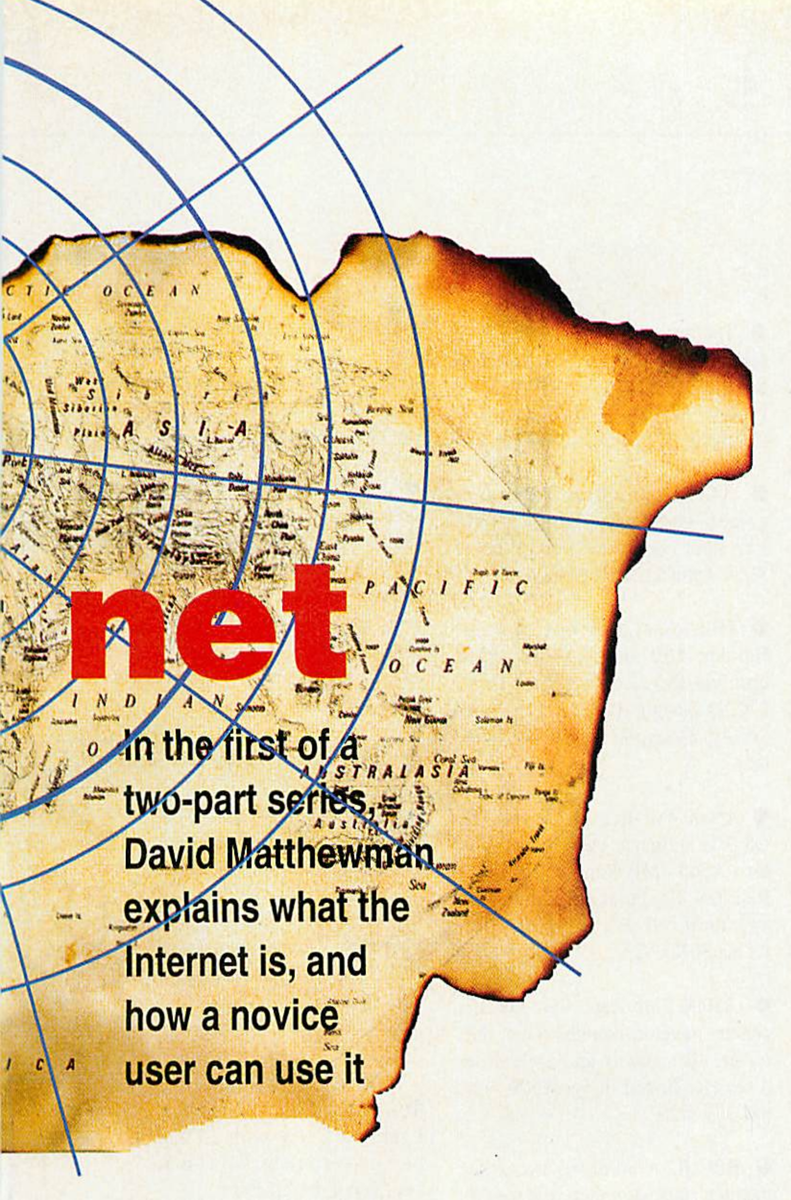
First, dial up Demon and log in. Either use *Slipdial* or *CallDemon*, which are automated, or a comms program. You will need to provide your sitename, password and protocol (Slip).

If using a comms program, take it off line after the 'HELLO' prompt. From *Hearsay*, this means unticking the line option from the 'General -> Line mode' menu, rather than quitting.

Run *KA9Q*. This will usually open a flurry of windows, and start transferring news and mail automatically, although all this is configurable. You should see constant modem and disc activity while this is happening, but you don't need to wait for it to finish before starting other sessions.

By typing in the main TCPIP window, you can start finger, telnet and ftp sessions, which will run in separate windows. Type 'ping gate' to check the connection – you should get a reply in a couple of seconds.

Typing 'quit' or chosing quit from *KA9Q*'s icon bar menu logs off and clears the connection.



configuration files within the applications.

If this makes you queasy, my suggestion is to strengthen your stomach and always keep a backup of the original files.

To help you, there is a directory on the cover disc containing an application to customise the configuration of your copy of *KA9Q* and a set of files describing the other changes that you will need to make. I could spend ten pages explaining how to configure *KA9Q* and everything else properly, and people would still have problems. Getting the whole set of programs working is unfortunately something of a 'black art'.

There is no 'plug in and play' solution, and you will be doing well to get the programs working first time. Don't be discouraged, it is worth it in the end.

Hopefully, by next month you will just about have got your Internet connection working in time for the second part of my article – about what you can do once you have Internet access.

What you need...

In the first place, you will need a modem. If you don't want problems and a large phone bill, one running 9600 baud or more will be necessary. You will need some form of comms program for your first login – during which you set your password – and optionally to do the actual dialling and logging in on subsequent occasions. You will need a Demon account, unless you have some other way of accessing Internet.

In order to communicate with Internet, you will need the program *KA9Q* – confusingly this application is actually called *TCPIP*, but is always referred to as *KA9Q* – which will do all the file transfer and so on.

This application usually comes bundled with a number of other resources that you will need: *SerialDev* which handles how *KA9Q* sends data to and from the serial port, *MailDir* which is where mail and news are stored and *BM* which is a primitive mail handler. It works, but is a pig to use. The latest and best version of *KA9Q* is 1.31b, and you should ensure that you have this version.

KA9Q won't dial up and log in automatically, so you need another program to do this. *Hearsay*, *Arcterm7* or some other comms program will do this, but they waste memory on such a trivial task. *CallDemon* and *SLIPdial* are two small alternatives.

Mail and news can be handled better by *ReadNews*, a newsreader actually written to read *Rucp* format news rather than *KA9Q*.

Because of this, it needs a couple of other programs to convert between the formats – *ka9q->rucp* and *rucp->ka9q* – which fortunately come bundled with a helpful *ReadMe* file which explains how to set everything up.

ReadNews also needs *Rucp* – available separately – and *Incorp* and *NewsDir* which come with it.

All the above are available free from various PD sources. There is another program, *ReaderS*, which costs £10, most of which goes to charity. This program is a lot easier to Set-up than *ReadNews*, and has a few advantages over the PD program, but either is perfectly usable.

The program *SetDemon* on the cover disc will configure *KA9Q* (version 1.31b) to work with your own setup. Other more sophisticated set-up programs may become available soon, but for the moment most of the set-up needs to be configured by editing files within the application directory.

...and where to get it

KA9Q, *ReadNews*, *ka9q->rucp*, *CallDemon* and *SLIPDial* are available from:

- Arcade BBS – which also has *UsingKA9Q*, a very useful beginner's guide to the KA9Q by Paul Allen of the Arm Club. Tel 081-654 2212 or 081-655 4412
- Hensa (micros.hensa.ac.uk) – the Higher Educational National Software Archive, which university networks ought to be able to access.
- ftp.demon.co.uk which is clearly no use if you are not already on Internet, but is helpful to get the most up-to-date versions of software.

ReaderS is available for £10 from:

- Anthony Frost, VCS Kernow, 10 Whiterocks Park, St Anns Chapel, Gunnislake, Cornwall PL18 9EF

The *AUN/Level 4 Fileserver* incorporating Acorn's version of *TCPIP* is available for just under £400 from Acorn and most dealers. The Slip driver for this is available from:

- Gnome Computers Ltd – Tel: (0480) 406164

A Demon connection costs £12.50 + VAT, with a £10 + VAT monthly fee, and is available from:

- Demon Internet Services – Tel: 081-349 0063



FREE ADS

● A3000 2Mb Learning Curve, Philips colour monitor, Risc OS 3.1, over £600 worth software, £550 the lot. Tel: 0423 872305

● BBC B, 40/80 track double disc, Aries Ram, Logo, View, DFS 1.2, Microvitec RGB monitor, manuals etc, £175 ono. Tel: 081 959 3666 ext 2085

● High quality Panasonic printer (KXP1180) all manuals, sheet feeder, dust cover, leads – 'from BBC' or 'from arc' – excellent condition, £100. Tel: 0438 816272

● Piedream 4, £30. Hearsay II, £30. Also A3000 4Mb Ram upgrade £50. Scanlight Plus (internal), £50. Tel: 031 664 3071

● A3000 2Mb Risc OS 3.1, Phillips colour monitor, stand, manuals, PC Emulator 1.82 + spreadsheets + DTPs & much educational software & games £550. BBC B twin 40/80 drives, Wordwise+, LOGO, software, £175. Tel: 0332 292612

● Public Domain & Shareware library for sale. Over 1000 discs including all latest software, preprepared catalogue £500. Tel: 0625 724449 (5-7pm) for details.

● User port/MIDI expansion card 3.14 (Acorn) for A3000, unused £30, Acorn PC Emulator (Risc OS 2) plus manual £20, Concept Keyboard A4-128 plus lead, very little use £40. Tel: (0824) 702 246

● BBC Acorn MEUA 3 Rom. Boxed and unused £50 ono. Miracle modem 2000 £40. R L Easter, Purley, Surrey 081-660 3797

● BBC Micro B, Star NL-10 printer, Teletext adaptor, Pace double sided disc drive, WS 2000 modem, mini office II, games £100 Cheshire (0606) 888 166

● Acorn A4 portable, Arm3, 4Mb Ram, 60Mb HD, Logitech Trackman mouse, Risc OS 3.11, PC Emulator, shoulder bag + manuals. Excellent condition £1500. Tel: 0532 631 388

● A420/1 Learning Curve, 40Mb HD, 4Mb Ram, Arm3, Risc OS 3.1, VIDC Enhancer, 5" disc drive interface plus Taxan 775 multisync monitor £750. Tel: 0522 720 713

● A3000, Arm3 (FPA socket & 8 month waranty), 4Mb, Risc OS 3.1, colour monitor, 120Mb HD on HCCS multipodule + software + Epson LQ550 24-pin all vgc. £850 ono. Tel: 0484 513399

● A4000 2Mb, multisync, 80Mb HD nearly full of PD and software. Perfect for the family. Mint condition £825 ono. Tel: 0629 52437

● Archimedes A310 with Acorn colour monitor. Lots of software boxed as new £400. Tel: Russell 0206 872868 (day) 865413 (evgs)

● A5000, 25MHz, 4Mb, 40Mb HD, multiscan monitor, Risc OS 3.10, Acorn DTP, 1st Word+ with manuals £1200 tel: 081-989 4092

● A5000 2Mb LC m/sync, 40Mb HD + assorted software. sale due to emigration. Cost £1700, accept £1300 ono. Tel: 036 085 455 (evgs)

● Acorn Pocketbook with Spellcheck and Schedule, hardly used, £150. tel: (0280) 823757

● Various BBC and Archimedes software for sale. For a free list phone Robert on 0883 343473 before 8pm.

● A5000, 2Mb memory, 40Mb HD, risc 3.1, multisync monitor, Learning Curve, Genesis 2, many games, PD discs, more! Excellent condition £950 ono tel: 0483 577218

● A420/1, 4Mb, 130Mb HD and Taxan 775 monitor. 30MHz Arm3, software. Risc OS 3.1 and 12 months telephone support. £850 Tel: Leeds 0532 687170.

● A5000 4Mb, 2xHD120, multiscan monitor, £850. CC ColourCard Gold, £150. Aleph 486/4Mb PC card, £300. Scanlight A4+sheetfeeder, £100. All for £1300. tel: 031 650 4132.

● A5000, 240Mb HD, 4Mb Ram, FPA10, SVGA NEC Multisync 2A, HP DeskJet 500, CC256 ScanJnr, Zool, Populous, +more, 1 year old, Grant 061 973 5217 for offers.

● BBC Master 128, twin pace disc drives in viglen master system, Philips RGB monitor, Taxan 810 printer, Microlink multi-speed modem, software, books and 25+ games £300ono. Tel: 0255 672331

● The dungeon – maps and puzzle solutions for all 14 levels available. Send £3 made payable to John Parker. 57 Firtree Grove, Sutton Coldfield, B73 5UN.

● A420/1, 4Mb Ram, 40Mb HD, games, software, monitor etc. Excellent condition £900. Contact Mr N Amin tel: 0392 873266

● Illusionist £40 ono, Render Bender £30 ono, A3000 2Mb upgrade £15. Contact Nick 0255 674794 (home), (0206) 873159 (university) roddnp@essex.ac.uk (internet)

● A5000 4Mb Ram, 40Mb HD, risc OS 3.1, multisync AKF18 monitor, also A540 4MB Ram, 112Mb HD, Risc OS 3.1, colour monitor, both vgc, must sell 081 531 9108 quote ref no. 867812/23

● A3000 2Mb Ram, Risc OS 3.1, colour monitor, monitor stand, dust cover, all manuals and apllication discs etc. Boxed in vgc £500. Tel: 081 397 8720

● BBC B, 40/80 drive, Microvitec monitor, teletext, mouse, transferom, View, extensive software including Mini Office 2, Printwise, Fleet Street Editor, Gemini DBase £195. Tel: 0733 380784

● A5000, 40Mb hard drive, 4Mb Ram, multisync monitor, Impression II, Artworks, PC Emulator, games etc. Plus a Hewlett Packard Deskjet 500C printer (256k soft font cartridge) Only £1500. Tel Howard 0386 82566 (weekends).

● A3000 2Mb Risc OS 3.1, 82Mb HD, colour monitor, TV converter, Learning Curve £650. Juki 6100 printer £25. Tel 0325 314602

● A410, 40Mb disc, 4Mb Ram, Arm3, Risc OS 3.1, VIDC enhancer, Eizo multisync monitor, manuals including Risc OS 2 PRM £780 ono. Tel 051 526 8931

● BBC B 48k, APTL sidewise, some roms, 40T drive, software: £175 ono. Electron +1, +3, Roms, software: £150. Call Gerald Holdsworth 081 304 1990

● A5000, 4Mb, 80Mb HD, AKF50 monitor £900. A4 notebook, 4Mb, 60Mb HD £1100. Tel Dunfermline (0383) 739629

● A5000, boxed and unused. 4Mb Ram, 80Mb HD, multiscan monitor, hand scanner & video card with Sleuth OCR, Learning Curve, £1400 ono. Tel: 0580 860449(evgs).

● A3000, 2Mb, Risc OS 3.1, Acorn colour monitor, all manuals £4000. Dunbartonshire 0436 842295

● Acorn A3000 2Mb SCSI HD with Interface PC emulator, colour monitor, various software plus manuals £550 ono. tel: 0438 767122/357500

● Acorn 410/1, 2Mb Ram, 40Mb HD, multisync monitor, Star LC10 printer, video digitiser, sound sampler, plus software and manuals. £850 ono Phone 081 579 4137.

● Archimedes 410/1, upgraded to 2Mb Ram, 20Mb HD, colour monitor, Panasonic KX-P1124 printer, Interdictor 2, Air Supremacy, E-Type, offers around £750. Tel: 0245 361198

● A3000 2Mb, colour monitor, Learning Curve with all manuals plus other software, all boxed £450 ono. Tel: 0384 298490

● A420/1, Arm3, Floating Point Accelerator, 4Mb, 80Mb IDE HD, 5" disc interface, Risc OS 3.1 £800. H D Boardman, 19 Southcliffe, Great Harwood, Lancs, BB6 7PP

● Electron, AP1, AP2, AP3 (minus drive), cartridges, leads, twin joysticks, manuals, books, magazines, huge software collection. Good condition £80 ono. Tel: 0329 281930 (evngs)

● Games: Virtual Golf, Birds of War, Cyber Chess £15 each. Chopper Force £10. Tel: 0922 57814

● A3000, 4Mb Risc OS 3.1, 2 drives, Learning Curve, Oak Recorder, many games £350 ono. Tel 0642 701355 - ask for Matthew.

● A3000, colour monitor, 2Mb Ram, PC Emulator + other software, manuals, all in good condition, £450. Tel 0663 746886

● BBC B 32k for sale with 40T disc drive, tape player, lots of games and 6502 second processor unit £125 ono. Tel 0705 468815

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Join the club

In the first part of our new series looking at the Acorn Club scene, Chris Jackson meets up with the Wakefield Acorn Computer User Group

This being the first club page, I've decided to check out one of the most established groups on the Acorn scene, The Wakefield Acorn Computer User Group.

The group started in 1983 and has been increasing its membership ever since, gaining interest and offering many services to its users.

Four years later, when the Archimedes came out, they started to support it alongside BBCs, and have never looked back.

Many of you will have seen the group at the Acorn roadshows which are held around the country in autumn, as they always have a busy stand, as well as loads of leaflets to hand out.

On the first Thursday of each month the group hosts a meeting at a local sports club, which starts at around 7.30pm and usually lasts until about 9.30 to 10pm.

Visitors

In this time, the group usually has an Acorn developer demonstrating new software or hardware, sometimes even before it is released to the general public.

The club's video projector plays a large part in this, and after the demonstration, the company involved usually gives the members the chance to purchase the software or hardware, often with special discounts.

Two software houses that have recently visited the group are Clares, who was showing its newly developed art package *ProArtisan 2*, and Colton who was demonstrating *Fireworkz*, the integrated spreadsheet and wordprocessor.

The group offers members the chance to learn how to use various Acorn packages, such as *RiscCAD* – the well-known Archimedes CAD package, which, incidentally, was written by one of Wakefield's members.

The group secretary, Chris Hughes, has organised special discounts for members with the various Acorn software and hardware developer. Clares offers 20% off, Minerva 10%, Oak Solutions 10% among many others, and Chris is negotiating discounts with Spacetech and Computer Concepts. These discounts alone seem a very good reason for people to join the club.

The group also has a software library which members have access to; it features PD, shareware and commercial demos for all of the Acorn range, both 32-bit and 8-bit.

However, instead of purchasing the discs, the club hires the discs out for a month, for a small fee, usually about 20p for a normal density disc.

Any profit that is made from the hiring of the discs is put back into buying them from the various PD libraries.

Newsletter

Every month a newsletter is produced – using *Impression Style* – which has a number of interesting topics such as news, general hints and tips (sometimes covering 8-bit topics) and members' adverts, which are not always computer related.

The group has over 100 members, so if you joined in search of information from a knowledgeable member, you will almost certainly find it.

The yearly subscription rates are £6 for a single person or £10 for 2 people (referred to as a family), which I think are very good, considering the services the group offers its members.

If Wakefield is just a bit too far for you to travel, but you would still like to be in the group to take advantage of the discounts and services offered, you can pay to get the club newsletter posted to you for £6 a year.

The meetings are held at West Yorkshire Sports & Social Club, Sandal Hall Close (off Walton Lane), Sandal Magna, Wakefield. If you aren't a member, you can still go in for 75p, but this doesn't let you take advantage of the special discounts.

If you prefer to join the club first, you can write to the club at 95 Cumbrian Way, Lupset Park, Wakefield, WF2 8JT.

Welcome to the club page

If you are a regular reader of *Acorn User*, you will probably have noticed by now that this column is new. The page is the first of its kind in *Acorn User*, and will appear every other issue. Each article will carry a full review of a club, group or disc-based magazine.

I'll also be covering the Archimedes CD Club when it gets going, so keep your eyes peeled if you own a CD-Rom drive.

If you would like your club to have a hearing on this page, you can contact me, Chris Jackson, on the Digital Databank BBS on (0707) 323531 as user #473, or by writing to me at The Club Page, Acorn User, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP.



● Render Bender £15, Sporting Triangle £9, Pro Copier (OS2) £5, Confusion (OS2) £5, 18xMicro User £5, contact Paul (Derby) 0332 792233

● Archimedes software - Birds of War £15, Gods £12, Stunt Racer £12, Quest for Gold £4, tel: Birmingham 0564 776360.

● BBC B+ (64k), Microvitec monitor, dual 40.80 disc drive and Epson LX-80 printer. Loads of original software including Wordwise Plus, educational packages and programming languages, £250 ono. Tel: 0748 850931

● A3000, Risc OS 3.1, 3Mb, colour monitor, Epson LX400 printer, Learning Curve, lots of software vgc, £450 ono. Tel Mr Bagnall 081 698 5614.

● A3020, 3Mb ram, 40Mb hard disc, colour Acorn monitor, some software eg word processor, paint package, manuals, Risc OS 3, £650 ono. tel Huntingdon 0480 461253

● Many games including Axis, Lotus 2, Pandora's Box £12 each. Gribbly, Blowpipe, Carnage inc. £10 each. Chopper Force, Saloon Cars Deluxe £15 each. Swiv, Boogie Buggie, Twin Worlds £5 each. Tel: 081 393 8379.

● A5000, 4Mb ram, 80Mb HD+FPA+Software, Acorn Multisync monitor £950, immaculate condition. Tel: 0900 814602.

● A5000, 4MB Ram, 80Mb HD, Acorn multiscan monitor, lots of software, manuals, as new £1280 ono. tel: 0590 677625.

● Over 100 Acorn User, Archimedes World, Micro User/Acorn Computing magazines, 1990 - 1993. Any offers? Call Islam on 071 377 1595. Buyer collects.

● A5000, 4Mb, 80Mb HD, multisync monitor, FPA, Colour Card Gold, Risc OS 3.1, Learning Curve, excellent condition, 9months old - £1500. Tel 0582 597933

● A5000, 4Mb, 40Mb IDE HD, 305Mb SCSI, multisync monitor, Learning Curve software, Risc OS 3.1, phone for details, Malcolm 0232 790014

● A310 80Mb IDE HD, 4Mb Ram, Risc OS 3.1, Arm3, VIDC enhancer, Taxan 770 Multisync, Intergrex 132 Colourjet, Loads of software, £900. Tel: 021 550 6828

● 64k Electron, AP1 to AP6, music 5000, ABR, monitor, M1009 printer + loads of software and games, £150. Tel: 0869 40488 after 6pm weekend

● A5000LC 4Mb Ram, Acorn DTP, First Word +, Genesis, machine is comprehensively configured with multiple boot options, various games and utilities on the hard disc. Offers? Tel: 0432 520850

● A4000, 4Mb Ram, 80Mb HD, multiscan monitor, Advance, S-Base etc. boxed as new. can deliver, £725 ono. Tel: 091 284 0817

● A420/1, 4Mb Ram, Arm3, Risc OS 3.11, HD, colour monitor, Scanlight 256 and software £950. Dual 5.25in drives and buffer interface £115 ono. Tel: 051 226 8881

● Acorn A4000, 80Mb HD, 2Mb Ram, colour monitor, mouse, software, vgc. offers around £500. 081 206 1026/0956 364395

● Impression 2 £65, Citizen Swift 24e colour printer, hardly used, excellent condition, still in original box, plus spare ribbon £150. Tel: 0277 625613

● Epson LQ-550 24 pin printer, superb condition and boxed £150. Armadillo 16bit sound sampler (for Risc OS 2), sounds great, boxed as new £150. tel: Derby 0332 674 810

● Wanted: Loan or buy Risc OS User Guide, also WP, DTP, DB and Poster packages for A310 with 1Mb ram and Risc OS 3.11. Tel: 0234 750486

● A5000, 8Mb, Risc OS 3.1, 120Mb + 40Mb, Eizo 9060, audio speakers, software including: games, Serenade, Compression, many fonts. MIDI card. Upgrading to Risc PC. £1250. Tel: 081 440 0096

● A5000, 8Mb Ram, 120Mb HD, Multisync monitor, PC Emulator, 1.81, Econet, Impression II, CC Fax Pack, PACE Linnet 1200+ modem. All with full documentation. Tel: 081 789 2663

● A3000 4Mb Risc OS 3.1, AFK 18 multisync, Acorn DTP, 1st Word +, Genesis, PC Emulator, DOS 5.0 & more, £650 ono. Tel: 0943 875597

● Master 128k, 400k 40/80 disc drive, Epson printer, joystick, software & games with book and accessories £250 ono.

● A3000, 2Mb Ram, colour monitor, stand, serial upgrade, all vgc, boxes and manuals, Saloon Cars Game £400. Tel: 0279 81701

● A310, Acorn colour monitor, upgraded 2Mb Ram, 55Mb SCSI HD, Linnet modem V21/V23, Citizen Swift 24 colour printer, First Word +, Hearsay, System Delta +, Newsmaster, Alpha Base, Graphbox, Gamma Plot, £500. No offers please. Tel: 051 428 4042 after 6pm

● Live in Yorkshire? Harrogate-based Acorn Risc enthusiast wishes to contact others in the area with a view to starting a user group. Please phone Grant: 0423 520850

● A310 + Arm3, 4Mb, 106Mb fast disc, Taxan 770 low emission multisync monitor, Risc OS 3.1, manuals and boxed £900 ono. I MacFarlane 0482 649288

● Master 128 £100. master Turbo £150. Akhter twin 40/80 drive plinth £80, Microvitec monitor £50, Eprom blower £15, Rom boards £3. Tel: 081 751 2120

● Laser Direct (Qume 6ppm, 300dpi) for the Archimedes, £400 ono. Tel: 041 776 5476 after 5pm.

● A3000 Learning Curve, 2Mb Ram as new, all in original wrapping, never registered, with Philips monochrome monitor £290 or 14in colour at £350. Tel: James 081 577 5088

● Archimedes A310, colour monitor, PC Emulator, games software and manuals, hardly used, in excellent original and boxed condition, real bargain at £325. Tel: Oxfordshire 0491 839480

● A5000, 4Mb Ram, 50Mb HD, SVGA momitor, SCSI card, Hawk V9Mk2 colour digitiser, Colour Card graphics, software, all vgc. Offers please - will split. Tel: 0223 355144

● A5000, 4Mb Ram, RiscOS 3.1, 120Mb IDE drive, excellent condition £700. State machine Colourburst graphics card £290. Tel: 0302 722781 after 6pm

● A310, 4Mb Ram, Arm3 plus FPA, Risc OS 3.1, 40Mb HDD, lots of software including 1st Word +, PC Emulator, monitor & manuals. £650 ono. Tel: 0703 733 787

● Wanted, Archimedes keyboard, working or not. Tel: 0452 417697

● BBC Master Compact with Over View II manuals, books, some games £275 ono. Tel: 0222 490766

● A3000, 2Mb, colour monitor, Risc OS 3.11, software including Impression Junior, Easiwriter and PC Emulator (latest). Excellent condition, all boxed, worth £1800, sell for £950. Tel: 0983 298444

● Master Compact, 3.5in drive, colour monitor, software, 5.25in drive, 12/300 modem £200, BBC B issue 7, cassette player, software £100. Tel: 021 327 6541

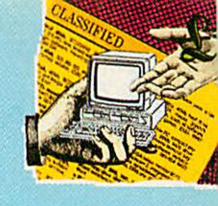
● Star LC-10 printer - v good 9 pin quality, 8k buffer, £55ono, or swap for 20Mb HD for BBC Master, buyer collects. Tel: 0749 674677

● Sale/swap: 7 discs of Digital Symphony music, original games, offers? Wanted: Risc OS 2 PRMs, pay £30/offers? Acorn Basic reference manual, pay £10/offers? Tel: Chris 0207 505247.

● A3000, 2Mb boxed, stereo monitor boxed, good desk/stand, ISO Pascal, graphics extensions, Pipedream, Ca-BJ10 printer driver, Saloon cars, Lemmings, etc. Disc case, mouse mat £450. Tel: 0705 297083

● A5000LC, 4Mb Ram, 40Mb HD, 3.5in floppy, Arm3, 14in colour multisync monitor (AKF18), keyboard. mouse, lots of software, PC emulator, DTP, WP, multimedia, 100s of fonts, Risc OS 3.1, perfect condition, only £950. Tel: 0753 862912

● A3000, 2Mb Risc OS 3.1, colour Philips monitor £410. 80Mb HD internal for above A3000 £2000, A5000 4Mb 80Mb HD multisync monitor £850. Tel: 0702 346307



● A5000 4Mb Ram, 40Mb hard drive, Risc OS 3.11, 14" multiscan colour monitor, Learning Curve, Epson LX86 printer, £1100. Tel: 051-264 8961

● A5000 or good A3000 series computer wanted for cash. Tel: (0374) 153365

● A3000 2Mb Learning Curve, Philips colour monitor, Risc OS 3.1, over £600 worth software, £550 the lot. Tel: (0423) 872305

A310, Acorn colour monitor, Risc OS 3.1, 2Mb upgrade, 40Mb hard drive, Impression + lots more software, £550 ono. Tel: (0945) 587152

● Electron Second Processor E2P-6502 £20, Z88 with extra 128k Ram and PC link cartridges etc, £95. Tel: 021-705 5816

● BBC wanted: scanner and digitiser (ex-Watford electronics) for Wapping editor. Tel: (0272) 553479

● BBC B, colour monitor, 40/80 disc drive (new) cassette player, joystick, View Professional Rom, STD DFS, lots of games, some educational, £150 ono. Tel: (0533) 776980

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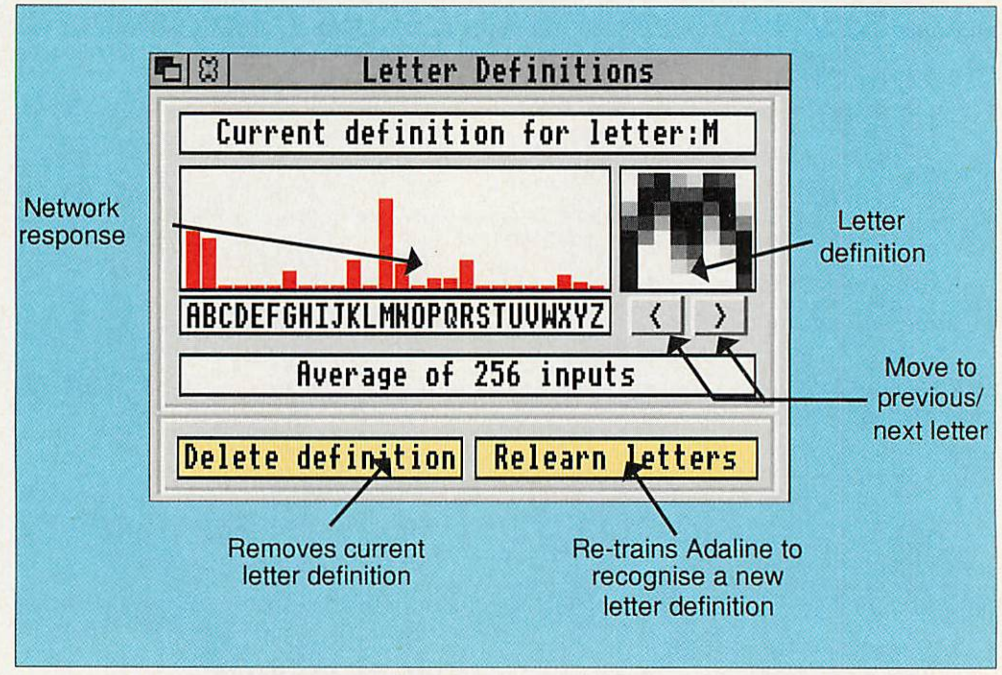
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The letter definition window shows how *Adaline 5* has interpreted the letter

Handwriting Reco

Anyone who has recently read the computer press cannot have failed to noticed Apple's revolutionary new toy, the Newton. The two main items of interest in this product are that it uses an Arm processor, and that it can read your hand writing.

Okay, to the majority of people the fact that it can read writing is more impressive than the chip it uses, but hey, this is *Acorn User*.

This article introduces a program that goes some way towards achieving what Apple has done in the Newton, interpreting hand written information. The only drawback is that you must use the mouse to enter the letters rather than a pen.

This may sound like a big promise, especially since Apple's own, highly developed version makes some mistakes, but with a little practice, on both your's and the computer's behalf, you can achieve impressive results.

The principles

Hand writing recognition by computer systems has been attempted many times in the past, and has many uses. Royal Mail has experimented with hand writing interpreters to read the addresses on envelopes, a system that would save a significant amount of time and money.

The traditional method of reading the information was to scan the input into a computer system and use a method called 'Template matching' to identify individual letters.

This method was implemented by scanning along each line of text, pixel by pixel. Each rectangular block was compared to a set of templates, one for each letter. If a particular block matched a template, the system outputted the corresponding letter.

This system proved to have problems with hand-written italic and joined-up hand writing since the top portions of letters overlapped the lower section of the next letter.

In the late 1960s, mathematicians started to develop models of brain cell formations called neural networks. These systems proved to be very good at interpreting patterns since they could cope with missing or contradictory information.

But, due to the lack of computing power, sufficiently large networks could not be implemented on computers with any great success. Not until the microchip revolution of the 1970s and 80s did computers with enough power become available in large quantities.

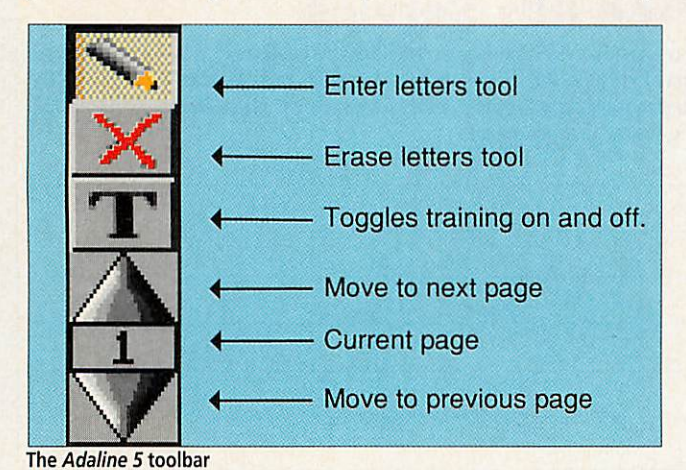
Using the program

Adaline 5 is an optical hand writing recogniser. It turns your scrawl into printed text – It is similar to the current generation of OCR packages, including *Acorn User*'s *Scribe* program, but instead of converting from scanned print to text, it converts from hand (mouse) written information to text.

Adaline, which is loaded in the normal way, initially presents you with a small dialogue box telling you that *Adaline* is learning its inputs. To be able to decipher handwriting, the program must have an idea about what each letter looks like. *Adaline* uses a set of character definitions or small pictures, one to describe each letter.

When it is first loaded, the program runs through each of these pictures noting the differences, so that when you enter a letter it can work out what it is. Clicking Select over the *Adaline* icon will bring up the main page window and toolbox pane.

The page is the area used for entering letters, while the toolbox contains icons that control the use of *Adaline*. Letters can be drawn onto the page using the left button. Any letter can be made up of more than one line if necessary, so that, for example, the letter X can be drawn. Any extra lines



The *Adaline 5* toolbar

must overlap, otherwise *Adaline* considers that you wish to enter a new letter.

Adaline will start to decode the letter once either a new letter has been drawn or three seconds have elapsed since you last amended the letter. In either case the output will be printed at the bottom left corner of your letter.

When entering several letters next to one another, *Adaline* will link the letters together and print them next to each other so that words can be constructed.

If the gaps between the letters are greater than the arbitrary limit, *Adaline* considers the letters to be separate and will print them as such.

When the page window is first opened, the toolbox pane shows the pencil (top) icon selected. This icon represents the letter input function. It is used, as above, for drawing letters on the page.

The icon below this is the erase function. When selected, the user can cross out letters on the page to amend

gnition

Paul Thompson explains how his Adaline handwriting program on the cover disc works

mistakes. The up and down arrows at the bottom of the pane can be used to change between pages, of which *Adaline* has ten. The current page is shown between the arrows.

Occasionally, *Adaline* will make mistakes and print the wrong letter. To find out why this happens, a display of *Adaline*'s thoughts on your letter can be displayed.

If you open the page menu and select Output, the Output window will open, giving you a bar graph display of how similar your letter was to all the letters *Adaline* knows.

The other icon, the T, toggles training on and off. This can be used, unsurprisingly, to train *Adaline* to recognise letters that it currently hassles over. It is used to amend the letter definition set described above.

To use it you must open the letter definition window by bringing up the page menu and selecting Definitions. The window that opens shows the current definition for the letter A as an 8 x 8 pixel bit map. The window also shows *Adaline*'s response to this letter, in a similar manner to the output window.

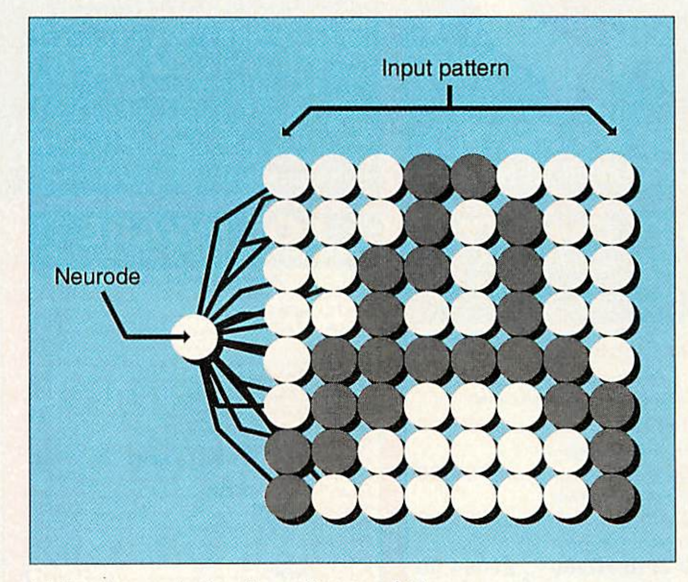
The left and right arrows can be used to cycle through the alphabet, while the self explanatory icons below do as they say. If *Adaline* continually makes mistakes with a certain letter, then using the train facility to teach *Adaline* how you draw this letter will improve its accuracy.

To train *Adaline*, use the left and right arrows in the definition window to show the letter you wish to change. Click on the delete definition icon to remove it. Now click on the T icon in the toolbox pane to select training.

From now until you deselect training, all letters drawn on the page will be used to update the letter in the definition window. If one letter goes particularly wrong whilst you draw it and you wish it to be unamended, the 'Undo last change' item on the definition menu can be used.

When you have entered a reasonable number of letters click on the Relearn letters icon in the definition window.

You should now find that *Adaline* can recognise the particular letter far better, although practice on your behalf may also help. Save your amendments by open-ing the page menu and click-ing Save definitions.



Adaline 5's neural network, used to guess letters

How it works

To convert hand-drawn letters into printed text requires some clever techniques. The typical approach would be to use a statistical analysis method, that is, to compare each letter to a rigid font definition, with the highest scoring letter winning.

A more trendy approach would be to use a massive (slow) neural network to identify letters. Whilst programming *Adaline*, I experimented with many different ways, including the two above methods, but both have their drawbacks and neither was successful.

Moments before abandoning the whole project and selling my computer, a flash of inspiration confronted me: why not combine both methods? This proved to be the most successful scheme and subsequently it is the method employed by *Adaline*.

The program uses a statistical neural network that combines the best features of both the above methods. A large bank of small networks are employed to work out whether a particular input is one of two learned inputs, while a general overall statistical round up is used to evaluate the outputs of the networks.

This method proves to be faster than the larger back-propagation (multi-layer) networks, but more successful than a simple statistical analysis.

The actual neural networks are incredibly simple (Risc?), each having just one neurode and an 8 x 8 pixel input array. The network layout and training algorithms are based on a type of network called ADALINE, for ADAptive LINear Element.

The simplicity of the network makes the learning process far faster than with a back-propagation network, where the output error must be computed for the hidden layer.

Each network must simply output whether an input pattern is one of two inputs. Each input represents a letter shape, and as such there are 325 individual networks for the upper case alphabet, one for each letter pair, A - B, A - C etc.

The overall learning process for the 325 networks is an impressive three seconds for an Arm250 machine.

Once the outputs have been compiled, each letter gets a statistical score depending on how many networks which learned that letter outputted the required result, and how strongly they outputted that result.

The top two scoring letters are then compared using the network which learned that particular pairing, and the final result is printed on the screen.

When a letter is drawn onto the page, the program mathematically shrinks it down to an 8 x 8 array of pixels. This pattern is then presented to the networks as described above.



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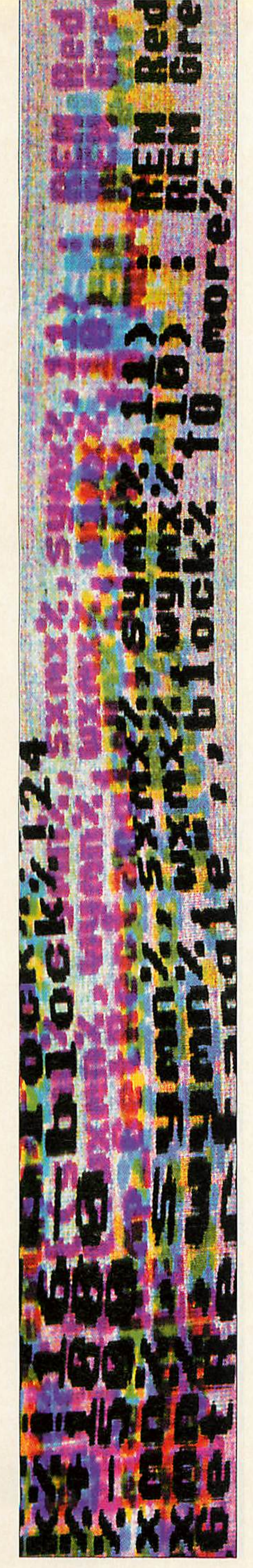
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Back to Basics

In the final part of the series, David Matthewman looks at direct memory access from Basic, and gives a round up of where to go for extra information

Last month I looked at accessing files, and saw that numbers can be stored in files in a format which, while compact, is not easy to read. Integers are stored in four bytes and real numbers are stored in five, as a bit-pattern giving a binary representation of the number rather than as a sequence of characters.

This is also the case with variables stored in memory. When a program contains the line:

```
var% = 1048576
```

the Basic interpreter stores the number 1048476 in memory at an address which it remembers.

The variable var% is said to have this address, because that is where its value, 1048576, is stored.

You are unlikely to need to know this address. Indeed in Basic there is no easy way of finding it out, as there is in languages such as C.

However, sometimes it is useful to store data directly to memory and to have some control over where related items of data are stored.

There can be considerable speed advantages to this approach when dealing with long lists of data.

Indirection operators

In Basic, memory can be accessed directly by using *indirection operators*. There are four of these: ? ! | and $. Preceding a variable with one of these will cause the value of the variable to be treated as an address.

The variable therefore must be an integer, and one with a value within the bounds of memory. In practice it is not advisable to try to set this up yourself unless you are really sure what you are doing. Basic provides a way of doing this automatically, by using the DIM statement.

Previously we have used the DIM statement to set up an array. However, if used in the form:

```
DIM addr% bytes%
```

with the second number not enclosed in brackets, the statement reserves a block of memory bytes% long, and sets the value of addr% to the address of the first byte.

It is important not to confuse this with the *address* of addr%, which is also an address but not one of interest

It is the *value* of addr% which is the address of the block of memory and which we can use with indirection operators.

```
?addr% = byte%
```

stores a byte – with a value between 0 and 255 – at the address given in addr%.

```
!addr% = integer%
```

stores a four-byte word – an integer variable – at the address given in addr%, and the three subsequent bytes.

```
|addr% = real
```

stores five bytes – a real variable – at the address given in addr%, and the four subsequent bytes.

```
$addr% = string$
```

stores a string at the address in addr% and however many bytes are needed afterwards. A carriage return – ASCII 13 – is stored on the end to terminate the string.

Memory offsets

Unlike the PTR# variable in files, addr% is not updated each time memory is written to and from.

The program therefore needs to keep track of how far through the block of memory it has progressed. Constructions such as:

```
?(addr% + offset%)
```

are legal within Basic fortunately, although the brackets are necessary. Without the brackets, offest% would be added to the contents of the memory at addr%, rather than to the value of the variable addr% itself.

The program:

```
DIM addr% 100
?addr% = 32
?(addr% + 1) = 64
!(addr% + 2) = 1048576
|(addr% + 6) = 6.02E23
$(addr% + 11) = "Hello
there!"
```

will store a sequence of bytes in memory from addr% to addr% + 23. The sequence, incidentally, will be 32, 64, 0, 0, 16, 0, 133, 248, 244, 126, 207, 72, 101, 108, 108, 111, 32, 116, 104, 101, 114, 101, 33, 13, but this is of little interest.

Lines three and four of the program above could also be written:

```
addr%?1 = 64
addr%!2 = 1048576
```

which is a compact shorthand way of using offsets from a base address. It can only be

used with ? and ! however, not | and $.

Reading data

The same operators can be used to read data from memory. It is important to realise that – for example – the ! operator will read *any* sequence of four bytes, and not just one that was written with ! in the first place. The block written in the last program could be read as follows:

```
byte1% = ?addr%
byte2% = addr%?1
word% = addr%!2
real = |(addr% + 6)
greetings$ = $(addr% + 11)
```

and also into an array of four-byte words by:

```
FOR i% = 0 TO 24 STEP 4
  word%(i%/4) = addr%!i%
NEXT
```

Listing 1 loads a file into memory byte by byte. It then 'scrambles' the file by EORing it with an integer, and saves it back to the disc.

As with last month, copy the contents of the *BasicProg* directory on the cover disc to another disc and run the *SetVar* obey file before running the listing.

Although the file is loaded and saved byte by byte, using BGET#, BPUT# and ?, it is 'scrambled' in blocks of four bytes using the ! operator for efficiency.

Using EOR to perform the 'scrambling' has one significant consequence – the original text can be recovered by simply running the program a second time.

A possible improvement to the program would be to make the key% scrambling code user-defined, which would provide a very primitive form of password protection.

And finally...

Over the past year, the Back to Basics series has introduced you to the building blocks of the Basic language.

If you have followed the series you should now be able to write fairly complex programs, and you will probably be itching to tackle your first desktop application.

Although we will be explaining how to do this in a future series, for those of you who cannot wait there are a number of books available which go into the subject in much more detail than is possible here.

There was a comparative review of the books available in the February 1994 issue. A summary follows:

The best reference work for Basic on the Archimedes is the BBC Basic Reference Manual, published by Acorn themselves.

This was originally part of the User Guide which came free with the computer, but nowadays must be bought separately for £19.95.

Although it is a comprehensive guide to Basic, it is not ideal as a manual to learn Wimp programming from.

There are three books which explain Wimp programming in Basic: Wimp Programming for All from Risc Developments (£12.95), A Beginner's Guide to Wimp Programming from Sigma Press (£12.95) and Basic Wimp Programming on the Acorn from Dabs Press (£14.95).

The last of these comes with a disc of useful examples and routines – discs are available separately for extra money with the other two books – but any of the three will be invaluable to the novice Wimp programmer, and worth buying for anyone who has got the hang of most of the Wimp, but still has a few problems.

Anyone contemplating writing complex applications should grit their teeth and invest in a copy of the Programmer's Reference Manuals for Acorn for £99.

While not Basic-orientated, they are well-written. Both the PRMs and the Basic guide are available on a single CD-Rom from Emerald Publishing for £99 + VAT, but to my mind this is a bit of a gimmick, and not up to replacing good honest pulped trees just yet.

Finally, Sigma publishes another book, First Steps in Pro-gramming Acorn Risc OS Computers, which covers much of the same ground as the Back to Basics series, but in a lot more detail.

It also looks at several aspects that we have not even mentioned, and is an alternative to the BBC Basic Reference Manual. It costs £14.95.

We hope that the series has been useful to those just starting to program their computers, using the excellent language supplied free by Acorn.

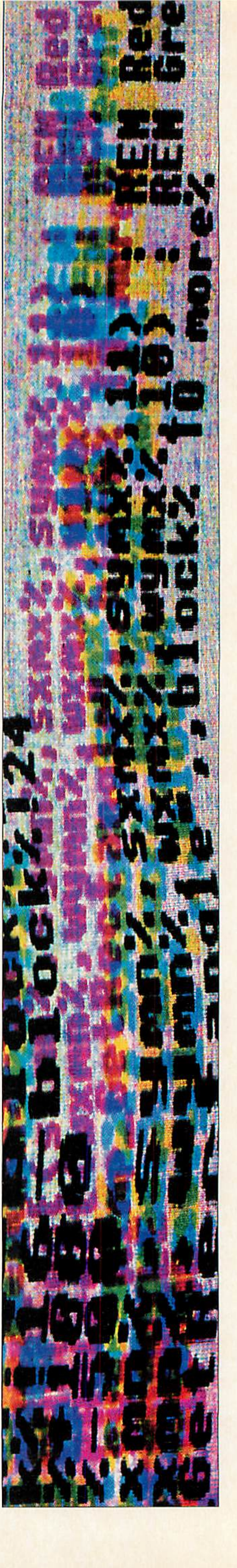
Such is the speed of interpreted Basic on the Archimedes that many programmers will need to look no further for a language in which to write desktop applications.

However, for those who do need either a faster alternative, or a language which contains mnay more powerful features, next month we will start a series looking at an alternative language widely used by Acorn programmers – C.

Until next time.

Listing 1

```
REM text file scrambler
:
key% = 1143697892
file% = OPENIN("<BackToBasics$Dir>.Text")
IF file%=0 PRINT "File cannot be found": QUIT
size% = EXT#file%
DIM memory% size%
FOR i% = 0 TO size%
  memory%?i% = BGET#file%
NEXT
CLOSE# file%
FOR j% = 0 TO size% STEP 4
  memory%!j% = memory%!j% EOR key%
NEXT
file% = OPENUP("<BackToBasics$Dir>.Text")
FOR k% = 0 TO size%
  BPUT#file%, memory%?k%
NEXT k%
CLOSE# file%
END
```



Recursive confusion, outdated computers, transfer via Syquest drives and alternative system beeps

QUESTIONS & ANSWERS

Q In the Back to Basics article in the April 1994 issue you touched upon the thorny subject of recursion. In Listing 2, try as I may I could not follow the program – despite using the Trace facility – as regards the continual calling of PROCanagram by itself.

Using three or four letter words I discovered that after all the anagrams had been found the program was jumping from line 180 to ENDPROC continuously.

I was wondering why the stack had not filled up because I have been led to believe that all return addresses are stored there.

Incidentally, using a nine letter word generated no less than 362880 anagrams and still the stack did not fill up.

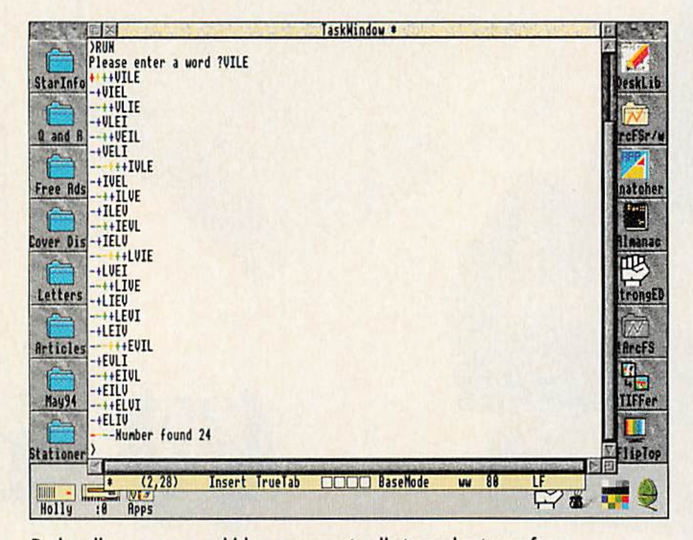
Mr W Cummins
Chingford

A **The situation can be clarified somewhat by inserting two lines into the program. Just after the 'LOCAL...' statement in PROCanagram, type in 'PRINT "+";'.**

Then, just before the ENDPROC, type in PRINT "-";. Now, when you run the program, every time that PROCanagram is called the machine will print a '+' sign, and every time that procedure is finished the program will print a '-' sign.

In order to work out the level of recursion, add one for each plus sign and subtract one for each minus sign.

This will tell you how many times PROCanagram has been called and not returned from, and therefore how many return addresses need to be stored on the stack.



Red, yellow, green and blue represent calls to and returns from the four copies of PROCanagram that suffice to find all the anagrams of a four letter word

With a four letter word, you will initially see four plus signs printed before the first anagram. For each subsequent anagram, you will find that each line contains the same number of plus and minus signs, up to the last line which contains four minus signs.

Therefore there are never more than four return addresses stored on the stack.

A nine letter word would only need to store nine return addresses, not 362880. Once the program has returned from a procedure, it no longer needs to store that procedure's return address.

The procedure works by taking a word, stripping off a letter, and finding all the anagrams of the letters that are left. It does this for each letter in the word.

Once it has done this for all the letters in the word, it exits, and Basic no longer needs to store its return address.

What makes the procedure unusual is that in order to find the anagrams of the letters that are left, it calls a copy of itself. However, neither procedure is 'aware' that they are copies of each other.

In fact, the program would also work with a chain of procedures with different names – PROCanagram1, PROCanagram2, PROCanagram3 and so on – all calling the next one in the chain.

The question is, if we were to write it in this way, how many of these procedures would we need?

For a four letter word, PROCanagram1 would take the initial four letter word, and call PROCanagram2 four times, passing it a subword of three letters in each case.

Note though that only one copy of PROCanagram2 would be running at any one time.

When PROCanagram2 had found all the anagrams of the first set of three letters it would finish and, as far as Basic was concerned, be forgotten.

PROCanagram2 would call PROCanagram3 in the same way, with a subword of two letters. PROCanagram3 would call PROCanagram4 with a subword of one letter.

PROCanagram4 would therefore simply print out an anagram and exit.

As before, only one copy of these procedures would be running at once, although they would be called many times.

The answer then is that we would need four of these procedures – PROCanagram1, PROCanagram2, PROCanagram3 and PROCanagram4.

The only difference with recursion is that the procedures all have the same name and are all copies of each other. There would still only ever be four copies in memory at any one time.

Q I have – mutter, mutter – recently bought a 33MHz A5000. Now that the Risc PC has come out, I feel a bit of a mug. However, having used my A5000 for a few months, I am actually very happy with it. If I don't trade it in for a Risc PC, am I missing out on anything important?

J Dandridge
Whitby

A **There are a multitude of ways in which the Risc PC differs from earlier models. Some – like the improved desktop with anti-aliased text and a cute open directory icon – are welcome, but hardly worth buying another computer for.**

Others may be more important, depending on what you actually want to do on your computer.

Some of the more imp-

ortant differences are:

- Improved graphics handling. The VIDC20 video chip in the Risc PC is capable of handling 24-bit colour, which is essential for photo-retouching and serious computer graphics work.

It also allows fast refresh rates for flicker-free screens at high resolution. The Risc PC can accept up to 2Mb of VRam – video Ram – which enables the high resolution, 16 million colour modes to be used.

- More memory. The most memory that can be fitted to an A5000 is 8Mb. A Risc PC can easily be expanded to 128Mb, and probably further by using third-party expansion cards.

This ties in with the graphics capabilities, since high-resolution 24-bit colour images gobble memory. An A4 page at 300dpi takes over 20Mb in 24-bit colour.

- A faster processor. The Arm610 which comes with the Risc PC enables it to run faster than an Arm3-based A5000, usually.

The speed increase is especially noticeable when doing processor-intensive operations in high-resolution screen modes. Arm700 and Arm800 chips can be easily and cheaply fitted to a Risc PC when they become available, and will speed the machine up further.

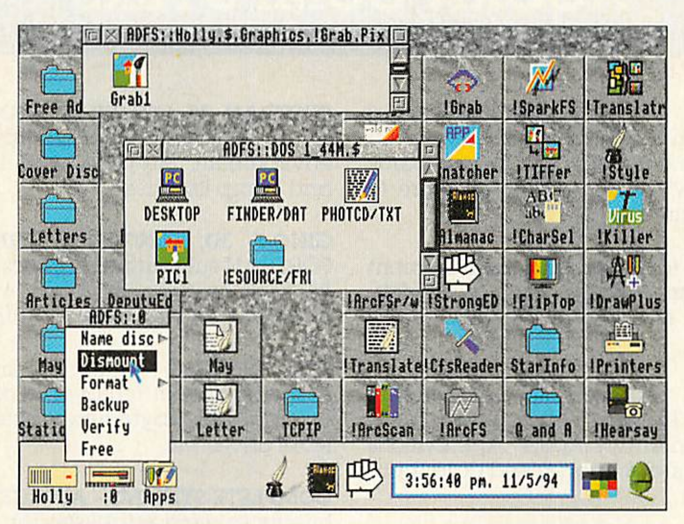
- The second processor slot. By the end of this year, it should be possible to plug a 486 co-processor into the Risc PC and run DOS and Windows software as on a native IBM PC.

This is a much better solution than current add-ons for earlier Archimedes computers, and is possible as a direct result of the design of the Risc PC.

Other co-processors may become available, as there is no reason in principle why a Power PC or Mac co-processor card could not be produced.

- Expandability. The Risc PC is easily expandable, with up to eight podule slots.

The expansion card interface is faster than that on the A5000, and it is likely that high-powered expansion cards which can only be used



Your files are at risk if you remove a DOS disc without dismounting

on the Risc PC will be appearing soon.

If none of these has struck you as a reason to buy a new computer, you will be fine with your A5000. Support for the older range of Archimedes will continue into the foreseeable future, and it is unlikely that software developers will only develop programs for use on Risc PCs.

However, as the potential of the new machine is explored, more and more software and hardware will have 'Risc PC versions' which take full advantage of the features of the new machines.

Anyone buying a new machine would do well to seriously consider a Risc PC rather than an A5000, simply for the future-proofing built into the new machine.


The A5000 – not a candidate for the scrapheap yet

Q I work in a lab with a number of Macintosh users. It would be very useful to be able to transfer large files of data – I'm talking 10Mb here – between computers. I have a 5in Syquest removable SCSI drive, as does one of the Macs. However, I cannot seem to read a drive written by a Mac on my machine.

I *can* transfer the files split over several 1.44Mb Dos format discs, which both machines will read. However, sometimes when transferring data from the Archimedes to the Macintosh, it appears to become corrupted with missing data points.

Can you help?

E Shaw
Cambridge

A **The Mac uses a different format from the Archimedes when writing to a 5in Syquest drive, so it is not possible to read on one type of machine a disc formatted on the other. Help may be at hand, since Computer Concepts is writing a Macintosh format disc reader, which will do the job when it is available. As for your missing data, this is caused by a bug in Risc OS 3.1. The filer only writes the final block of data to a 1.44Mb DOS disc when the disc has been dismounted.**

If you remove the disc without dismounting it you will lose data – choose 'dismount' from the menu brought up by clicking with the Menu button on the drive icon on the icon bar.

Jonathan Simmons from Pontefract sent us this tip concerning the relocatable sound modules supplied with the *Armony* application on the May 1994 cover disc:

'Supplied with the *Armony* chord sequencer were a large number of sound samples stored as relocatable modules. These can be loaded into the computer by double-clicking on them.

'By using the Sound option from the *Configure* application, it is possible to change the system "error beep" for one of these samples.However, they generally sound pretty awful, because the default pitch of the system beep is too high and so they are played too fast.

'The cure is to use the:

```
*FX 213 p
```

command from the command line – press F12 – where "p" is a pitch value from zero to 255.

'The samples supplied with *Armony* sound fine with a value of zero. However, it doesn't seem possible to configure the computer to always start up with this pitch value, so suitable commands must be put in the start-up sequence.

'For example:

```
RMLoad <Wherever$Dir>.MAR-
IMBA
Channelvoice 1 MARIMBA
FX 213 0
```

should do the trick.'

Thanks Jonathan for that tip.

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Acorn Customer Hotline

Essential information for all Acorn users, compiled by Dave Walker of Acorn Customer Services

Questions and answers

When using the spreadsheet in *Advance*, I get an error of 'Too many items in menu'; what should I do?

You have too many fonts installed for *Advance* to look at. The easiest way to de-install some fonts is to make a secondary *Fonts* directory which is not included in your *Boot* file and which is not in a directory you have to traverse to get to your installed copy of *Advance*, and move your less frequently-used fonts into it.

You'll then need to reset your machine with a Ctrl-Break.

When I'm using Printers 1.22 with a colour printer driver, I get a 'Bad strip type' error; what's going wrong?

You're probably trying to use a version 1.22 Printer Definition File with the 0.33 version of *Printers*. Make sure you have *Printers* version 1.22 loaded (look at the Info entry from the *Printers* iconbar menu).



Hints and tips

When using a package such as *Edit* or *Advance*, which use outline fonts, it is often possible to speed up the drawing of the characters by altering the computer's font cache and FontMax settings.

The most flexible way to configure these parameters is from the command line: either exit the Risc OS desktop using F12, or use Ctrl-F12 to produce a Task Window.

```
*status
```

displays the current font settings, along with other data about your machine's configuration.

```
*configure FontSize <amount of memory>
```

sets the amount of memory which is allocated for outline fonts. This can be set by a number of memory pages or more easily in Kilobytes, indicated by a K after the amount required.

The Font Manager will not shrink this memory cache below the size set. Generally, 32K is suitable for a couple of fonts.

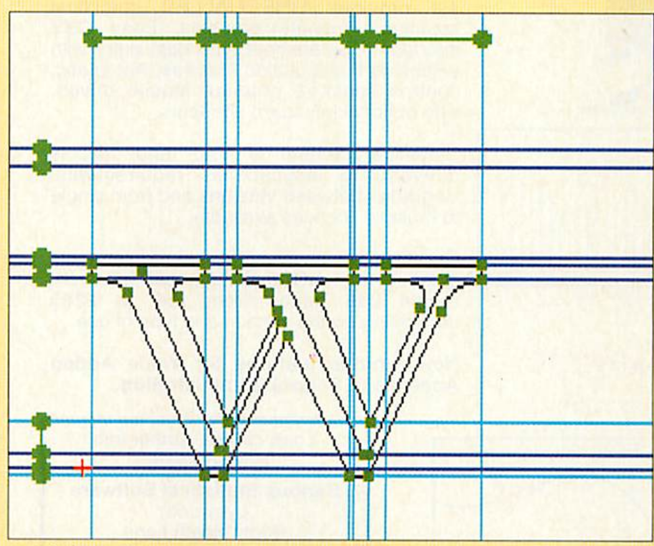
```
*configure FontMax <amount of memory>
```

sets the maximum amount of memory which may be claimed by the Font Manager for storing font data. This may be data in the form of outlines, which can be thought of as *Draw* files which describe the lines and curves which make up each character, and bitmaps, which can be thought of as sprite files containing the pixel data about each character once it has been scaled and rendered for display on the screen.

For a complex wordprocessed document using more than half-a-dozen fonts, a figure of 128K gives a good speed of character drawing. For most users, a reasonable rule of thumb is to allocate 64-128K of font cache per megabyte of Ram.

After issuing these commands, a Ctrl-Break must be used for the changes to take effect.

```
*configure FontMax1 <point size>
```



A definition of a character in an outline font file

sets the character height at which a character should be produced from a source non-anti-aliased bitmap, as opposed to an outline file.

```
*configure FontMax2 <point size>
```

sets the character height at which a character should be produced from a source outline file, as opposed to a bitmap.

```
*configure FontMax3 <point size>
```

sets the maximum height at which character bitmaps should be retained in the font cache. This is a balance between using more memory to store a lot of character display data, or reducing the speed of the machine by forcing it to convert more often between outlines and bitmaps.

```
*configure FontMax4 <point size>
```

and

```
*configure FontMax5 <point size>
```

are concerned with the appearance of the text on the computer monitor. They determine how large a character must appear before anti-aliasing ('rounding' the edges of curved characters by displaying parts of a single character in different shades of grey) is implemented.

The parameter taken by FontMax4 is the maximum character width at which sub-pixel anti-aliasing should be used and is measured in units of points, where one point is 1/72 of an inch. FontMax5 is the same threshold for the vertical direction, ie maximum character height.

FontMax2, FontMax3, FontMax4 and FontMax5 may also be set using the Fonts dialogue box within *Configure*. FontSize and FontMax may be set via the Memory dialogue box.



Acorn Customer Services, Acorn Computers Ltd, Acorn House, Vision Park, Histon, Cambridge CB4 4AE



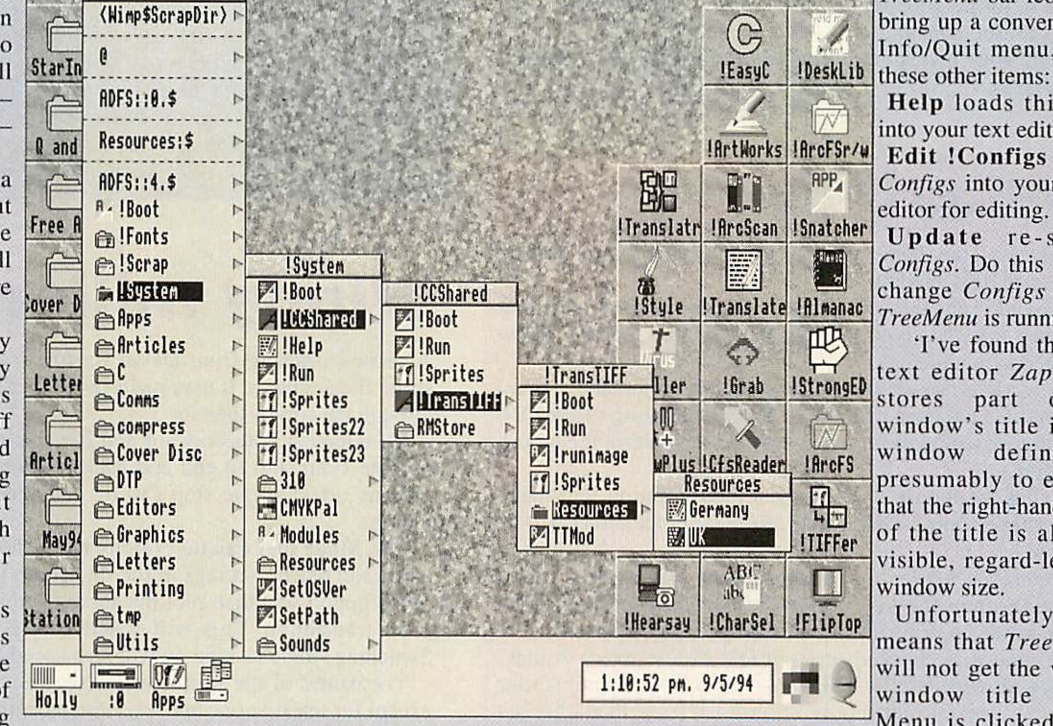
Dave Lawrence and Dave Acton continue their monthly look at programs, for all Acorn Users

Trees a crowd

TreeMenu is an excellently useful desktop addition from Julian Smith. Acorn could do well to have a look at programs such as these and include them within the kernel of Risc OS.

The program is an adaptation of Julian's *DirMenu* which has been floating around for quite a while now, but he has finally seen sense and sent it to us. In return we'll send him a hefty – in size, not in 0's – cheque.

Julian provides a full *Help* file, but if you can't be bothered to read all the details, here are the main points.



'This utility provides an easy way to access directories/files off your disc and resource filing systems without thrashing through endless Filer windows.

'It provides hierachical menus containing the tree structure of any of your filing systems. These menus can be opened either by clicking with Select on one of *TreeMenu*'s icon bar icons, or clicking with Menu on the title bar of any window whose title contains a filename. Alt-Menu clicks inside Filer windows are also detected.

'Choosing an item in a menu will do exactly the same thing as double-clicking it in a normal Filer window – i.e. open directories, load files, or run applications.

'*TreeMenu* does a "*Filer_Run ..." on whatever you clicked on, so hold down Shift to open application directories/load files into your text editor, or Ctrl to open a directory without booting applications. Choosing a menu item with Adjust will keep the menu open.

'If a window contains a valid filename in the title, clicking Menu on the title bar of the window will bring up a menu containing all the parents of the filename, and also the contents of the parent directory. This allows you to access the directory of a file, its sub-directories, or any of its parents very easily, and also to branch out into any other part of the directory's filing system.

'Clicking Menu on the title bar of a Filer window works in a similar way. *TreeMenu* also responds to Alt-Menu clicks inside Filer windows only. When a menu is brought up by clicking on a window, there will be an extra item "Set CSD". Choosing this will set the Currently Selected Directory (CSD) to the title of a Filer window, or the parent directory of, for example, an *Edit* window. *TreeMenu* comes set up to have one icon bar icon. Clicking Select on it will bring up a menu containing the contents of ADFS::4 – your hard drive, if you have one – as well as items leading to your Resource filing system, your scrap directory, the Currently Selected Directory (CSD) and whatever is in your floppy disc drive.

'Clicking Menu on any *TreeMenu* bar-icon will bring up a conventional Info/Quit menu, with these other items:

Help loads this file into your text editor.

Edit !Configs loads *Configs* into your text-editor for editing.

Update re-scans *Configs*. Do this if you change *Configs* while *TreeMenu* is running.

'I've found that the text editor *Zap* only stores part of a window's title in the window definition, presumably to ensure that the right-hand side of the title is always visible, regard-less of window size.

Unfortunately, this means that *TreeMenu* will not get the whole window title when Menu is clicked on a small *Zap* window. Hence, the menu brought up will sometimes be incorrect if *Zap*'s window title bar doesn't have room for the complete path.

'I don't really know of a way of curing this, as there is no way for *TreeMenu* to find the full filename.'

Author: Julian Smith

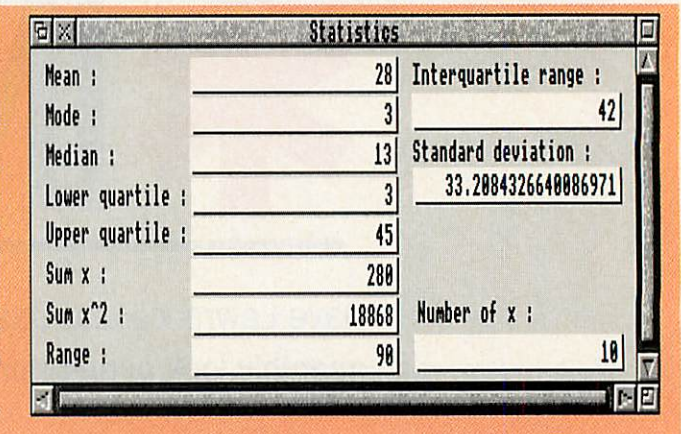
Simple stats

If you're statistically inclined and more than a little fed up with entering your data on a calculator with keys the average amoeba might describe as bijou, why not try this utility instead.

Enjoy the luxury of a full-size Arc keyboard and enter your list of figures in *Edit*, saving it as a text file. Then drag the file onto the *Stats* window and wonder at the wealth of information that appears, from standard deviation to lower and upper quartiles.

Data should be entered as one figure per line. To save more time, you can follow a figure with a frequency – e.g. 4;300 for 300 fours – although some might think this takes half the fun out of it.

Author: Nick Kennedy



MUSCs of the month

Now, two more contenders for the title of Most Useless System Call, which we began last month. SYS 'OS_ReadRam FSLimits' tells me exactly where the Ram disc lies in memory, a fact which, although sounding almost useful, has never proved to be a problem to me through my ignorance of it all these years.

Contender two is SYS 'Wimp_DecodeMenu' which takes a menu selection as a perfectly useful list of integers and decodes it, for no good reason, into a string. A sprite would be about as useful thanks.

Any of your own nominations gratefully received at the usual address.

PointerHide+

Timothy saw Tony Patterson's utility for hiding an idle pointer in the April 1994 *INFO.

We asked if anyone could improve on the idea by switching the pointer off when typing began and Timothy supplied a new *PointerHide* module...

'The module I have written provides one command, *Hide, which takes a parameter of ON or OFF. On issuing *Hide ON, the computer will wait for a key press and then turn the mouse pointer off.

'Moving the mouse or pressing a mouse button will make the pointer re-appear. On issuing *Hide OFF, the effect will be cancelled.

'*PointerHide* works by intercepting the event vector (&10) and acting upon the key pressed/released event (11) . The current mouse co-ordinates are stored upon such an event.

'The mouse is checked through OS_Mouse every "timer" centiseconds (using OS_CallEvery – the value "timer" is user definable). The current mouse co-ordinates are then checked against those stored when the key was pressed. If the mouse has been moved or the buttons pressed, the pointer will re-appear.'

This is apparently Timothy's first module, so congratulations on a job well done. The source for *PointerHide* is included on the cover disc, as well as the module itself.

You might like to add a couple of lines to your boot sequence to load the module and turn the hide facility on automatically.

Author: Timothy Hall

File fighter

This is the first entry in our barcode battler challenge. *File Fighter* is an application from Richard and John King that allows your DTP files to do battle with your latest C program.

Drop a couple of files onto the file-fighter window and click on the crossed swords icon in the centre. The files are then assessed and battle is done with weapon, magic and mind. A mystic name is even assigned to the file. Once one file has lost all its weapon and magic skill the battle is over and the other file is the winner.

As it stands the program seems to be lacking a certain something – perhaps it should delete the beaten file – but seriously, can anyone add any features; how about more than one file per side or more varied skills?

It is also quite easy to predict which file is going to win from the start, so how about a more elaborate fighting system or a more evenly matched initial skill allocation.

Authors: Richard and John Kin

Windy miller

A second offering from David Barrow is a straightforward sprite file animator. It uses plain sprite files and simply cycles through the sprites therein.

By selecting both Forward and Reverse the animation will oscilate from start to end and back to start again. With both options off, a single step can be achieved by clicking the mouse.

The Mode and Palette options force the desktop into the mode and palette settings of the first sprite in the file. The No Trans option will then plot the sprites without any scaling or pixel translation. This will speed up the plotting process. Switching single tasking on will also speed things up.

The names of the sprites within the file are not significant except for the first one and any which begin with a '*'. A '*' tagged frame will be held for the given frame hold time instead of the standard frame time.

The first sprite name can be used to set up the animator automatically. The name should be of the form: c/n/ttt/hhh/ where c can be a * (as above), n = zero for single step, one for forward, two for reverse and three for oscilate, ttt = frame display time and hhh = tagged frame hold time.

More details can be found in the *Help* file within the application directory.

Author: David Barrow

Polygraph unmasked

In March 1994 we carried *Polygraph*, by Jean-Claude Picard, which elegantly reproduced the swirly patterns made by those toys that we all seemed to have as children – you know, with all the plastic cogs that rotated cunningly inside and outside each other.

Well, we also made a plea for more information on how it all worked, and Peter Mason, a student of Warwick University (Toy Department presumably), has kindly provided the necessary gen, complete with diagram. Take it away Peter...

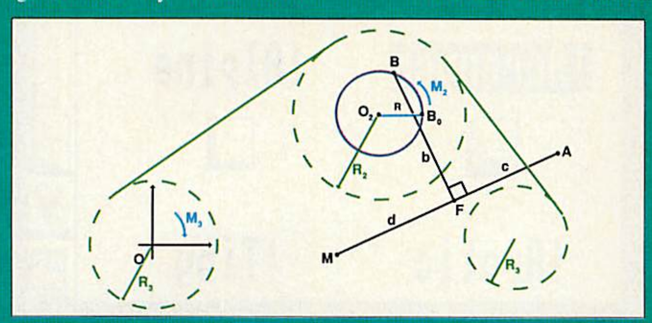
'The patterns are generated by overlaying a non-linear transformation of a constant anti-clockwise rotation about O_2 with a clockwise rotation about O.

'The rotation about O_2 works as follows: As B rotates under the effect of M_2, starting from B_0, the linkage MAFB moves so that angle MFB=90° and MFA remains straight, with A fixed.

'Lengths b and d are read in as data, so c varies with the rotation and M traces out a closed curve, which is "D" shaped. To make the "D" look more interesting, a copy of M is rotated clockwise about O by M_3 (a rotation which is happily continuing in the background), and the result of this is plotted, giving the "Spirograph" figures.'

'The basic speeds of rotation about O and O_2 are governed by the ratios $(R_1/R_3)kt$ and $(R_1/R_2)kt$ (hence the pulley-like illustration) and the value of t changes to drive it all, with the right and left mouse buttons to speed the plot up or slow it down.'

Author: Peter Mason



Multiple Sorting

Based around the fast Risc OS call OS_HeapSort, Graham's *MultiSort* allows sorting of data in the form of strings, integers or floating-point numbers on more than one field.

OS_HeapSort is fast and has the added advantage of allowing strings to be case-sensitive. One drawback is that HeapSort does not handle floating-point numbers.

A way round is to decide on the required number of decimal places and multiply the number accordingly to produce an integer, finally dividing it again after sorting.

To demonstrate *MultiSort* just run it. The program displays unsorted data for 26 records (stored at the end as DATA statements).

The initial priority order is given at the top, namely three-one-two-four (ie. sex followed by surname followed by forename, followed by age). You can change this in PROCinput in the program.

So you can observe its effect, the program waits for a keypress between each level of sorting. *MultiSort* ends after the final sort.

Including MultiSort

PROCinit sets up the starting conditions for the example but you can modify this as required. There is space for 30 records, each containing four fields whose maximum length is 20 characters.

There are currently 26 records. The fields – surname, forename, sex and age – are dimensioned as arrays, the first three being strings and the fourth an integer.

The field type – one = string, two = integer – and other information is read from DATA statements. An array Index%() is set up to contain the record numbers, initially in numeric order.

It is this index which is sorted and used to present the data in the required sequence – the data in the other arrays are not changed. Finally an array, priority%(), is dimensioned to hold the field numbers in priority order.

PROCinput gathers the user's choice of priorities and number of levels, and whether or not string fields should be case-sensitive. Your own program would need to validate this input.

FNdata simply returns as a string the contents of any field in any record, depending on the field type. If strings are not case-sensitive then they are converted to upper-case.

Having set up the starting conditions, we call up PROCdisplay to show the unsorted data, followed by PROCsort() which takes four parameters: The current number of records, the number of sort levels – one to fields% – the array of priorities of field numbers and a flag for case-sensitivity: four = no, five = yes.

PROCdisplay uses the index array to present the information in the correct sequence.

How MultiSort works

There are two main procedures. PROCsort() performs the initial sort, and may be used as a stand-alone procedure for single-level sorting. PROCmultisort() carries out the subsequent sorting.

```
PROCsort(records%,levels%,
priority%(),case%)
```

OS_HeapSort requires a table of pointers to the data to be sorted, and it is these pointers that are sorted, not the data. PROCinit creates two workspace areas: data% to hold the actual data to be sorted, and table% to hold the pointers to the data.

Note that the space for each item of data is set to fieldlen%, which is the maximum length of any field (20 in the example).

Next, data% is loaded with the data items for the top priority field and table% with the addresses of those data.

The address of the first data item is assigned to fad%. OS_HeapSort can now be called to sort the pointers into the correct order. The value of case% governs whether or not the case is taken into account in strings sorts.

Now, PROCtransferOut is called. This scans the table of sorted pointers, converting them to record numbers and transfering them to Index%() which ends up with the record numbers in sorted order. Finally, but only if levels% is greater than one, we make a call to PROCmultisort.

```
PROCmultisort(records%,
levels%,priority%(),case%)
```

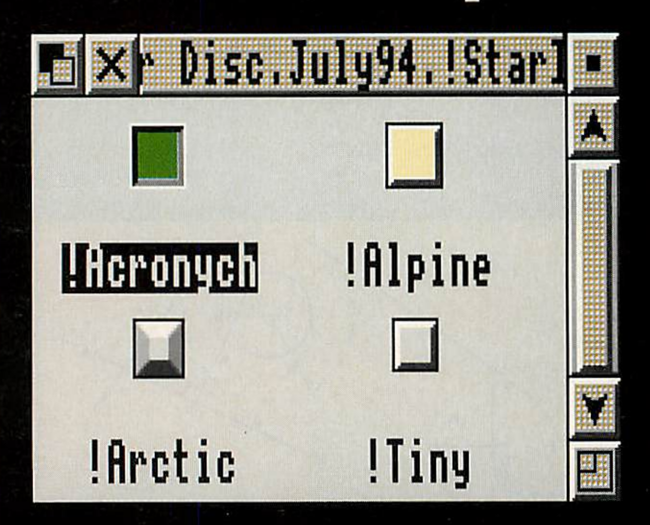
performs all additional sorts (beyond the first, main one) in the order specified. Index%() is scanned in sequence for any consecutive groups of items which have the same value according to the previous priority field.

FNcompare is used for this purpose. If a group of two or more items is found, PROCheapsort is called to re-sort the group using the current priority field.

This process continues until the array Index%() has been sorted into order by all priority fields.

Author: Graham Crow

All tooled up



We have a small selection of replacement window tools next. Three come from David Barrow of Pontefract who designed them for 'those fed up with the mouldy cheese effect of Acorn's *NewLook*'.

'*Acronych* & *Alpine* (same design) add colour which is quite pleasant in VGA or SVGA modes and permit readable selected window titles in 16-grey palettes (unlike Acorn's own set). *Arctic* is a smaller and neater set of tools with a very subtle 3D effect.

'Incidentally, when the title-bar is tooled, anti-aliased font titles seem to produce transparent backgrounds, even when the correct 'Fxx' validation is used. This is quite annoying on all thise demo programs which used tarted up windows.'

David has provided these tools as applications which can be simply double-clicked. Most of the work is done in the *!Run* file, but a small (one line) Basic program is needed to issue one SWI call to stop the 'Press SPACE or click mouse to continue' message.

The fourth set of icons, *Tiny* comes from Darren Salt (we've filched David's application – Darren didn't send in the same idea...).

This must be the smallest, usable set of icons possible. It is useful on 80-column screens if you need to squeeze a couple of extra characters in your windows.

Authors: David Barrow and Darren Salt

Torn bedlam

You must know our rules about Mr. Benoit's set by now, so here's a version which fits in the 'significantly different' category. It was written by Alistair Turnbull – you know, the 3D spinning sierpinski pyramid person.

Select an area with the mouse and press Space to zoom in. The interesting thing about this version is the use of colour away from the edges of the set – the areas which are normally plain solid colour.

You'll have to run the program to really appreciate the subtle changes in colour. The method of plotting is also quite unusual – perhaps Alistair and Jan (Vibe or Vlientinck) should get together some time . . .

I guess our 'other category' (faster) is about to get inundated with entries, so if you're considering sending in an Arm600 M set, make sure it's good and speedy, but also try and make it reasonably interesting!

Author: Alistair Turnball



Single handed shutdown

Any A4 portable users will know that performing a machine shutdown from the keyboard involves quite a lot of muscle. Michael Borcherds' little utility swaps F10 and F12 around (and all Ctrl, Shift and Shift-Ctrl combinations) to make this process a little less stressful.

The module works by intercepting the insert character vector InsV and changes the key press for another. The code is very easy to follow and it would be simple to add further key swaps if desired. The extra program InsV prints out the key codes as received by InsV.

We've always though that a module that changed NumLock and ScrollLock to F11 and F12 and allowed their original functions through with the function key would be handy for A4 users.

As would a Caps Lock and Ctrl swapper – but that's another story altogether, although I guess Risc PC users might also like something along these lines. But then they'd also probably want a \ not next to a SHIFT key and ' and £ in the right place...

Author: Michael Borcherds

*QUIT

As always, everything is welcome. Send to *INFO, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield, SK10 4NP.

Name, address and program title on every disc please and include a text file containing the same. An SAE will ensure your disc's return. All instructions, diagrams, examples and anything else useful or pretty are also gratefully received.

A quick note about the programming style: Lower-case, meaningful variables names are best and no GOTOs please. Your program should be clearly laid out and run straight from the desktop if at all possible

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ADA 2170	340Mb	16mS	£409
ADA 2180	420Mb	13mS	£419

A3020 Internal IDE Drives

Part No.	Capacity	Access Time	Price
ADA 2120	60Mb	19mS	£139
ADA 2130	80Mb	19mS	£179
ADA 2140	120Mb	16mS	£219
ADA 2150	200Mb	13mS	£359
ADA 2160	340Mb	13mS	£479

Accessories

- A5000 2nd drive accessory kit £10
- External Case & PSU for HDD £49
- 16-bit IDE Interface - A300/A400 £59
- IDE ROM Upgrade to v2.10 £16
- A300 Podule case £10
- 8-bit IDE Interface - A3000 internal £69

ARM3 Turbo Card



Using the latest surface mount technology on a high quality 4 layer PCB, the ARM3 Turbo Card will increase the speed of your A300, A400 or A3000 computer by up to 6 times.
The upgrade can be fitted by the user in A300 and A400 machines, but for owners of the A3000 we can collect, fit and deliver your computer back for an additional £24.
Owners of A300 and old A440 models will need a MEMC1A upgrade to use the ARM3.

Offer Price
£89

BUY ARM3 & RISC OS 3 TOGETHER FOR ONLY £165

RISC OS 3.1 Upgrades

- RISC OS 3.1 Single User upgrade £74
- RISC OS 3.1 Bulk Software upgrade £319
- RISC OS 3.1 Hardware upgrade £24

Scan256 Handscanner

If you need a 256 greyscale handscanner for your Archimedes or A3000 (external), then look no further.
Scan256 gives you up to 256 grey levels at a maximum resolution of 400dpi and is supplied with state-of-the-art software. This makes it the only sensible scanning and image processing solution for the Acorn 32-bit machines.
The highly advanced software supplied with the scanner offers you many different image processing options, such as dithering, image enhancement, edge detection, brightness and contrast controls, plus many more.



Features include:
- Multiple copies of an image in memory at once
- Advanced image processing tools
- Convolution digital filtering with over 100 filters
- Adjustable scale & size during scan
- Save images in industry standard formats
- True brightness, contrast and gamma controls
- Selectable scanning modes
- 105mm scanning width
- Ability to rotate and shear the image

- **Scan256 for A300/A400/A5000 £155**
- **Scan256 for A3000 external £175**

TO ORDER CALL OUR SALES HOTLINE 0582 745555
or FAX YOUR ORDER on 0582 488588

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I/O Cards

A3000 User Port/MIDI card	£44
A3000 Analogue/User card	£35
I/O Podule - User/Ana/1MHz	£79
Archi Analogue/User card	£49

Disc Controllers

External Floppy Disc Interface	£10
Backplate/Lead for above	£9
8-bit SCSI card	£129
16-bit SCSI card	£149
16-bit SCSI card - 16Kb cache	£169
16-bit SCSI card – Acorn	£249
ST506 Hard Disc podule	£49
16-bit IDE interface - A300/A400	£59
8-bit IDE interface - A3000 internal	£89

Ultimate Expansion

Ultimate Expansion – A5000	£39
Ultimate Expansion – A3000	£39
Ultimate Expansion – A3010	£41
Ultimate Expansion – A3020	£38
SCSI uPodule	£69
Vision Digitiser uPodule	£99
Analogue uPodule	£29
Serial Port uPodule	£49
MIDI uPodule	£49
Scanlight 256 uPodule	£229
PSU Kit for Ultimate Exp.	£30

(please call for pricing of above cards with IDE hard drives fitted)

Graphics Cards

Colour Card Gold	£239
Chroma 500 Genlock card	£419
Chroma 150 PAL Encoder	£169
Chroma Genlock card	£209
Hawk V9 MKII Digitiser	£189
Eagle M2 Multimedia card	£319
Vision Colour Digitiser	£99
HiVision Colour Digitiser	£149

Scanners

Spectra Colour Handscanner	£549
Scanlight 256 – A300/400	£188
Scanlight 256 – A3000	£198
Scanlight Professional	£549
Scanlight Video 256	£199

Networking

Econet Module – A300/400	£49
Econet Module – A3020	£49
Econet Module – A4	£49
Econet Interface – RiscPC	£49
Ethernet III card – A5000	£149
Ethernet interface – RiscPC	£99
Acorn Access – A3000	£145
Acorn Access – A3020	£145
Acorn Access – A5000	£145
Acorn Access – RiscPC	£119
AUN/Level 4 Fileserver	£369
TCP/IP Protocol suite	£399
Accord P/P Networking – A3000	£145
Accord P/P Networking – A3020	£149
Accord P/P Networking – A5000	£145
EtherLAN Card – A3000 (BNC)	£131
EtherLAN Card – A3020 (BNC)	£143
EtherLAN Card – A5000 (BNC)	£131
EtherLAN Card – A3000 (BNC/TP)	£131
EtherLAN Card – A3020 (BNC/TP)	£148
EtherLAN Card – A5000 (BNC/TP)	£131
EtherLAN Card – RiscPC (BNC/TP)	£113
12 port UTP Ethernet hub	£379

Ethernet Cabling

Length	Thinnet	Twisted Pair
1m	£2.50	£2.00
3m	£4.50	£2.75
5m	£6.50	£3.25
10m	£9.50	£5.25

Miscellaneous

Floating Point Accelerator – A5000	£99
386 1Mb PC Card – A3020	£225
486 4Mb PC Card – A3020	£420
MIDI Expansion card	£85
MEMC1A Upgrade	£25
4 Podule Backplane	£22
Fan for Backplane	£7
Arc to BBC Serial Link	£16
Microlin FX Modem/Software	£199
Archi 906 Tablet (OS 2 only)	£105
Archi 1212 Tablet (OS 2 only)	£199
A3000 Serial Upgrade	£19

Multimedia & CD-ROM

Cumana CD-ROM Drives

Enter the world of Multimedia on the Arc with the Cumana range of CD-ROM drives and accessories.

300 Series - low cost drive

300 CD-ROM Drive/Interface	£339
300 CD-ROM Pack 1	£424
300 CD-ROM Pack 2	£509
300 SLCD Interface only	£89

600 Series - SCSI drive

600 CD-ROM Drive only	£424
600 CD-ROM Drive/Interface	£509
600 CD-ROM Pack 3	£594
600 CD-ROM Pack 4	£680

(CD-ROM Packs include Drive, Interface Cables, Stereo Speakers and some CDs)

Pioneer Multi-Disc CD ROM Drive

A new range of SCSI CD-ROM drives which accept 6 discs at the same time.

DRM602X Dual Speed CD drive	£499
DRM604X Quad Speed CD drive	£999

Acorn Multimedia Expansion

The ideal CD-ROM expansion system for the Archimedes. Styled to match the A4000 and A5000 this unit will fit neatly on top. Supplied with 8-bit or 16-bit SCSI card and cables.

Multimedia Expansion	£485
Multimedia Expansion – 16 bit	£585
Multimedia Expansion – 8 bit	£565

HCCS Ultimate CD-ROM Drive

A dual speed CD-ROM drive supplied complete with interface.

Ultimate CD-ROM for A300/A400	£289
Ultimate CD-ROM for A3000	£289
Ultimate CD-ROM for Ultimate Exp.	£289

Aries CD-ROM Upgrade for RiscPC

The ideal CD-ROM drive for the RiscPC. The drive is available with or without 16-bit SCSI card, and can be installed in a matter of minutes.

Aries CD-ROM Upgrade for RiscPC	£275
Aries CD-ROM drive only	£149

CD ROM Software

Artworks	£129
Artworks Clip Art	£18
British Birds	£150
Castles	£40
Countries of the World	£40
CD – 4 Disc Set	£149
CD Francais	£120
Creepy Crawlies	£90
Dictionary of Living World	£175
Dinosaurs	£124
Frontier 2000 CD	£125
Grooves	£90
Hutchinson Multimedia Encyclopaedia	£49
Illustrated Holy Bible	£23
Illustrated Shakespeare	£23
Image Warehouse	£53
Revelation II	£98
Sherlock Holmes	£23
Space Encyclopaedia	£57
Really Useful CD v1	£47
Really Useful CD v2	£47
Times & Sunday Times	£195
Tekkie CD	£99
Pro Artisan v2	£149

Memory Upgrades

A310 to 2Mb RAM	£89
A310 to 4Mb RAM	£149
A3000 to 2Mb RAM	£49
A3000 to 4Mb RAM	£119
A3010 to 2Mb RAM	£49
A3010 to 4 Mb RAM	£135
A3020/A4000 to 4Mb RAM	£79
A410/1 to 2Mb RAM	£40
A410/1 to 4Mb RAM	£80
A420/1 to 4Mb RAM	£120
A540 additional 4Mb RAM	£249
A5000 to 4Mb RAM	£79
A5000 2Mb to 8Mb RAM	£349
A5000 4Mb to 8Mb RAM	£359
RiscPC additional 2Mb RAM	£85
RiscPC additional 4Mb RAM	£149
RiscPC additional 8Mb RAM	£299

(A310 upgrades are dealer fit only – we will collect, fit and deliver computer back for £25)

LaserDirect Printers

Print at high speed up to 600dpi resolution with Computer Concepts' LaserDirect printers.

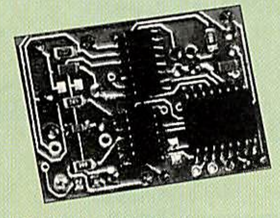
LaserDirect HiRes 4ppm	£799
LaserDirect HiRes 8ppm	£1099
LaserDirect card for LBP4+	£37

ArcLaser Printers

This range of direct-drive laser printers for the Archimedes gives excellent high speed printing. Models available range from 300dpi A4 size to 1200dpi A3 size.

ArcLaser A4 1200dpi	£985
ArcLaser A3 1200dpi	£4995

VIDC Enhancer



The Watford VIDC Enhancer for the Archimedes 300/400 and A3000 computers, caters for all types of Multiscan and VGA monitors.

A disc of utilities is supplied to allow you to define your own modes, and change existing ones. A desktop mode selector is also supplied.

Multiscan VIDC Enhancer	£15
SuperVGA VIDC Enhancer	£29
9 to 15 pin VGA Adaptor	£9

Coming next month...
a revolution in scanning technology for your Archimedes or RiscPC computer

Archi Hand Scanner

Watford's MKII hand scanner for the Archimedes and A3000 has a maximum resolution of 400dpi, and a scan width of 4". The software is supplied on ROM, so there are no discs to load. Features include: cropping and scaling images, X flip and Y flip, and edge detection allows you to transform solid images into outlines.

A300/400/A5000 version	£89
A3000 external version	£109
v1.10 ROM Upgrade	£20

Upgrade to A4 Scanner
For existing users of the Watford MK2 Hand Scanner we can offer you an upgrade to the A4 Scanner for only **£129**

Archi A4 Scanner



The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, etc, with its detachable sheet feeder, or used as an A4 wide hand scanner. 64 grey levels are produced from the scanner at resolutions up to 400dpi. The software included on ROM allows you to adjust contrast and brightness of the scanned image, rotate, shear and cut out sections of the image. The scanner uses a green light source which gives improved contrast on images over conventional red light scanners.

A4 Scanner for A300/A400	£199
A4 Scanner for A3000	£229
Sheet Feeder for A4 Scanner	£69

PC Cards

Transform your Archimedes so you can run standard PC MS-DOS software and even Windows 3.1 with the Aleph One range of PC cards. Available as a bare card with either 486SLC25 or 486SLC2-50 (no memory) or with 4Mb RAM fitted. Prices do not include DOS or Windows, which we can supply for an extra £99, at time of purchase only.

386 1Mb RAM - A3020/A4000	£225
486 4Mb RAM - A3020/A4000	£420
486 25MHz 0Mb RAM - A5000	£369
486 25MHz 4Mb RAM - A5000	£529
486 50MHz 0Mb RAM - A5000	£449
486 50MHz 4Mb RAM - A5000	£609
MS-DOS 6.2/Windows 3.1 Bundle	£99
4Mb SIMM RAM for 0Mb cards	£149

Archi Accessories

A3000 Keyboard Dustcover	£5
A3000 Combined Dustcover	£9
A3010 Keyboard Dustcover	£5
A300/400 Dustcover	£9
Archi Keyboard only Dustcover	£5
A5000 Dustcover	£9
14" Monitor Dustcover	£6
Perspex Keyboard Cover	£8
A3000 Monitor Stand (Acorn)	£29
A3000 Monitor Stand (WE)	£15
A3000 Podule Case	£15
A3000 Carry Case	£10
A4 Notebook Carry Case	£35
A4 Notebook Battery Pack	£49
A4 Notebook Mains Adaptor	£69
Archi Keyboard Extension Lead	£8
Replacement Mouse (Acorn)	£39
Archi MK4 Replacement Mouse	£24
Quest Tracerball	£25
Mouse Port Splitter	£10
Voltmace Delta Cat Joystick	£25

Fax/Modem Bundle

Now you can use your Archimedes computer as a fax machine. Prepare a fax, send it using the ArcFax software. Receiving a fax is simple - display on the screen or print out on any RISC OS printer.

Fax/Modem with ArcFax software	£199

Archi Mk4 Mouse

The new Mk4 mouse for your Archimedes is the ideal replacement for your old worn out Acorn mouse. The sleek design makes the mouse a pleasure to handle, and it also looks nice on your desktop.

only £24

Archi Spare Parts

Cased Archimedes keyboard	£99
Replacement Archimedes keyboard	£75
A3000 replacement keyboard	£35
A300/A400 power supply unit	£79
A3000 power supply unit	£49
A540/R260 power supply unit	£79
A5000 power supply unit	£69
3.5" FDD for A3000/A400/A540	£49
3.5" FDD for A5000/A4000	£49
VIDC video controller	£39
IOC I/O controller	£39
Fan filter	£4
Replacement mouse cable	£12
Replacement keyboard cable	£17
1.2v NiCad battery for A3000	£5
AA batteries for A300/A400 (2pk)	£2
Function keystrip holder	£4
Eject button for Citizen FDD	£2
Loudspeaker	£6

Concept Keyboards

Universal 2010 Concept keyboard	£107
User Port cable for 2010 keyboard	£12
Archi Serial cable for 2010 keyboard	£12

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or FAX YOUR ORDER on 0582 488588

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ARCHIMEDES SOFTWARE

Below are listed the more popular software titles for the Archimedes. If you cannot see the title you require, please call for price and availability.

Educational

10 out of 10 Early Essentials	£18
10 out of 10 Junior Essentials	£18
10 out of 10 Maths - Number	£18
10 out of 10 Maths - Algebra	£18
10 out of 10 Maths - Statistics	£18
10 out of 10 English	£18
10 out of 10 French	£18
10 out of 10 Dinosaurs	£18
10 out of 10 Driving Test	£18
Advantage	£32
Animated Alphabet	£18
Animated Numbers	£18
An Eye for Spelling	£31
Arcventure I – Romans	£24
Arcventure II – Egyptians	£24
Arcventure III – Vikings	£24
Around the World in 80 Days	TBA
Aztecs	£37
Badger Trails	£34
Best Four Adventure	£34
Best Four Language	£34
Best Four Maths	£34
Body	£17
Bookbinder	£43
Bookstore – Primary	£35
Bookstore –Secondary	£52
Britain since 1930	£26
Bumper Disc 1	£14
Bumper Disc 2	£14
Connections	£27
Converta Key	£9
Crystal Rain Forest	£34
Desktop Stories	£35
Dream Time	£19
Export, Trade and Industry	£34
First Page	£39
First Logo	£20
Farm (5-7 years)	£18
Fleet Street Phantom	£22
Food for Thought	£17
Fun School 3 Blue (under 5)	£17
Fun School 3 Red (5-7 years)	£17
Fun School 3 Green (over 7)	£17
Fun School 4 Red (under 5)	£17
Fun School 4 Green (5-7 yrs)	£17
Fun School 4 Blue (over 7)	£17
Geordie Racer	£24
Glimpse	£8
Graph IT	£17
Hilighter	£30
Insight	£68
Investigating Maths	£34
Jigsaw	£18
Landmarks – Aztec	£17
Landmarks – Civil War	£17
Landmarks – Columbus	£17
Landmarks – Egypt	£17
Landmarks – Elizabeth I	£17
Landmarks – Rainforest	£17
Landmarks – Victorians	£17
Landmarks – World War II	£17
Linkword – French	£32
Linkword – German	£32
Linkword – Spanish	£32
Magpie	£58
Making of the UK	£35
Mapping Skills	£25
Mapventure	£22
Medieval Realms	£35
Naughty Stories vol.I	£48
Naughty Stories vol.2	£48
Numerator	£33
Picture Book	£14
Podd	£23
Recall	£36
Seelinks – Ourselves	£26
Seelinks – Pondwatch	£34
Seelinks – Tourism	£54
Seelinks – Transport	£34
Selladore Tales	£23
Settlement	£30
Snippet	£31
Space Mission Mada	£22
Splash	£18
Stig of the Dump	£21
Story Starts	£24
Talking Pendown	£59
Teddy Bears Picnic	£22
Topographer	£62
Victorians	£19
Viewpoints	£33
Wizards Revenge	£16

Games

Adventures of Sylvia Lane	£19
Air Supremacy	£13
Apocalypse	£14
Arcade 3 Compilation	£11
Battle Chess	£21
Birds of War	£25
Black Angel	£23
Boogie Buggie	£14
Break 147 & Superpool	£24
Bug Hunter in Space	£9
Carnage Inc.	£20
Cataclysm	£15
Champions Compilation	£21
Chess 3D	£14
Chocks Away Compendium	£26
Chocks Away Extra Missions	£12
Chopper Force	£18
Crystal Maze	£29
Cyber Chess	£25
Cycloids	£17
Demons Lair	£18
Diggers	£18
Dungeon	£24
Ego Repton 4	£17
Elite	£31
Enter the Realm	£17
E-Type Compendium	£17
E-Type Extra 100 Miles	£12
Fervour	£18
F.R.E.D.	£17
Galactic Dan	£14
Games Wizard	£17
Gods	£18
Grevious Bodily Arm	£14
Haunted House	£20
Heimdall	£24
Hero Quest	£21
Holed Out Compendium	£12
Interdictor 2	£22
Ixion	£22
Jahangir Khan Squash	£19
James Pond	£18
James Pond 2 - Robocod	£21
Lemmings	£18
Lemmings 2 - Tribes	£24
Lotus Turbo Challenge II	£18
Mad Professor Mariati	£14
Magic Pockets	£22
Master Break	£13
Man at Arms	£14
Manchester Utd in Europe	£18
Nebulus	£18
Oh No! More Lemmings	£14
Omar Sharif's Bridge	£18
Pandora's Box	£17
Pipe Mania	£15
Play It Again Sam 1	£17
Play It Again Sam 2	£17
Play It Again Sam 3	£17
Populous	£21
Powerband	£14
Powermonger	£24
Quark	£19
Quazar	£10
Real McCoy 2	£21
Real McCoy 3	£21
Real McCoy 4	£21
Return to Doom	£16
Repton 3	£14
Saloon Cars Deluxe	£24
Sensible Soccer	£22
Sim City	£21
Simon the Sorcerer	£32
Stunt Racer 2000	£24
SWIV	£18
Sylvia Lane	£18
Striker	£17
Technodream	£18
The Last Ninja	£18
Twin World	£13
Virtual Golf	£24
Warlocks	£24
Worldscape	£16
White Magic 2	£15
Xenon 2	£20
Zool	£18

NEW GAMES

Diggers	£18
Sensible Soccer	£22
Simon the Sorcerer	£32
Crystal Maze	£29

DTP

Impression Junior	£63
Impression II	£109
Impression Borders Disc	£12
Impression Business Sup.	£38
Impression Style	£79
Impression Publisher	£135
Impression Publisher OPI	£223
Ovation	£82

DTP Utilities

Desktop Thesaurus	£16
Equasor	£36
Show Page	£139
Spellmaster	£42
Sleuth OCR	£40
Type Studio	£37
Optical OCR	TBA

Word Processors

DeskEdit 3	£24
Data Word	£14
Easiwriter II	£114
Easiword Plus	£42
Pendown	£45
Pendown Plus	£67
Primeword	£50
Wordz	£84

Databases

Eureka	£95
ProSheet	£39
Resultz	£105
Schema	£89
DataVision	£66
Flexifile	£68
Genesis Project	£49
Genesis Professional	£119
Knowledge Organiser	£75
Masterfile III	£45
Multistore v2.01	£99
Pinpoint v2	£83
Pinpoint Junior	£23
Recordz	TBA
S-Base v2 Developer	£139
S-Base v2 Personal	£69

Integrated

Acorn Advance	£85
Desktop Office	£69
Pipedream 3	£55
Pipedream 4	£93
Fireworkz	£129

Languages

Acorn Desktop Assembler	£118
Acorn Desktop C	£179
Acorn PC Soft	£89
Control Logo	£20
Easy C	£45
Logotron Logo	£45
RiscBASIC Compiler v3.0	£66
RiscFORTH Compiler	£66
Robo Logo v1.1	£37

Site Licences

Advance Primary Licence	£181
Advance Secondary Licence	£440
Artworks	£540
Impression Style	£435
Impression II	£542
Ovation DTP	£475
Pinpoint	£379
Pipedream 4	£695
S-Base	£399

Communications

ArcTerm 7	£64
Hearsay 2	£75
ArcFax	£35 + VAT

Graphics

New Release

ProArt 24 is the latest addition to Clares range of graphic packages. Written for the new RiscPC, this powerful software takes advantage of the machines 24-bit colour capabilities and more.

ProArt 24 £139

Artisan 2	£42
Autosketch II	£65
ArcTist	£14
Atelier	£59
Artworks	£105
Chartwell	£24
Craftshop 1	£18
Craftshop 2	£18
Euclid 2	£59
Film Maker v5.1	£55
GraphBox	£54
GraphBox Professional	£102
Illusionist	£68
Image Animator	£65
Kid Pix	£34
Plot	£66
Poster	£74
Presenter GTI	£65
PrimeArt	£46
Pro Artisan 2	£99
ProArt 24	£139
Render Bender II	£89
Rephorm	£49
Revelation II	£74
Revelation Image Pro	£125
Solids Render v5.1	£75
Titler	£114

CAD

Arc PCB v1.8	£79
Arc PCB Professional v3.2	£169
Arc PCB Schematics v5.1	£229
CADet	£125
SolidCAD v5.1	£65
SolidTools v5.1	£169
PowerRouter	£129
Excellon Drill	£53
Oak Parametric Design Tool	£149
WordCAD	£69

Business

Business Accounts System	£275
Business Account Modules	£85
Payroll Manager v2.0	£66
Prophet Accounts	£131
Home Accounts	£33
Financial Accountant	£225
Shareholder Professional	£195
Micro Trader System	£275
Micro Trader Modules	£75
PlanING	£95
ProjectING	£295

Music

Rhapsody 2	£45
Rhapsody 3	£78
Notate	£57
Armadeus	£55
Vox Box	£45
Score Draw	£45

Printer Drivers

Expression PS	£19
Citizen Colour Driver - OS 2	£15
Deskjet 500C/550C Driver	£15
Epson JX Printer Driver	£15
Star Colour Driver - OS 2	£15
TurboDriver - Canon BJ	£39
TurboDriver - Epson Stylus	£39
TurboDriver - HP	£39
Show Page	£139
Repro	£42
Printers upgrade disc	£5
ImageMaster scanner software	£35
Twain drivers for scanners	£20

Books

!Help - RISC OS 3	£10
!Help - Draw	£16
Archimedes Assembly Lang.	£15
Archimedes Operating Syst.	£16
A3000 Technical Manual	£29
A5000 Technical Manual	£65
A3010/A4000 Technical Manual	£30
A540 Technical Manual	£66
A4 Technical Manual	£65
A4 Portable Handbook	£7
A4 Welcome Guide	£10
Ansi C Rel.4 User Guide	£26
Acorn to PC	£5
Artworks Made Easy	£15
Archi Games Maker Manual	£15
ARM Technical Data Manual	£10
BBC BASIC Reference Guide	£20
Budget DTP on the Arc	£13
Beginners Guide to Wimp Prog.	£13
Basic Wimp Programming	£15
C: Dabhand Guide 3e	£17
C Programming Language	£27
Control on the Archimedes	£10
First Impressions	£28
File Handling for All	£10
First Steps in Prog. RISC OS	£15
Good Impressions	£25
Graphics on the Arm	£15
Impression II - Dabhand Guide	£15
Mastering 1st Word Plus	£14
RISC OS Style Guide	£10
RISC OS 2 Prog. Ref. Man.	£79
RISC OS 3 Prog. Ref. Man.	£99
RISC OS 3 Apps/User Gd.	£20
RISC OS 3 First Steps	£15
RiscPC 600 Welcome Guide	£5
RiscPC 600 Technical Man.	POA
Wimp Programming for All	£13

Software Bundles

- **Arcventure** £65 — Romans, Egyptians, Vikings
- **Linkword** £87 — French, German, Spanish
- **Lemmings &** Oh No! More Lemmings £27
- **Crystal Maze &** Games Wizard £44
- **Artworks &** Clip Art CD £119
- **Impression II &** Business Supplement £130
- **PC Emulator &** Acorn Advance £155
- **Ovation & Thesaurus** £69

SPECIAL OFFERS

Acorn DTP	£15
1st Word Plus	£10
Lemmings	£10
Quest for Gold (HD)	£5
Pacmania	£5
Genesis	£15

Printer Drivers

AUN/Level4 Fileserver	£369
TCP/IP Protocol Suite	£199
Speech!	£17
Investigator 3	£49
MultiFS	£29
DFS Reader	£5
Articulate	£18
AudioWorks	£45
Compression	£38
GerberPlot	£54
Hard Disc Companion v2	£38
Oak Logic	£69
Ancestry	£58
RISC OS 3 ID Utilities Discs	£10
RISC OS Upgrade - TV Digi	£25

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Laser Printers

All Laser printers (excluding Hewlett Packard) include 12 Months On-Site maintenance

Brother HL-6	6ppm	£422
Brother HL-6V	6ppm	£485
Canon LBP-4U	4ppm	£480
Canon LBP 4i	4ppm	£480
Canon LBP-8 IV	8ppm	£925
Canon LBP-8 IIIR	8ppm	£1559
Epson EPL-5200	6ppm	£483
Epson EPL-5600	6ppm	£660
Epson EPL-7500 PS	6ppm	£1135
Fujitsu VM600	6ppm	£529
Fujitsu VM4	4ppm	£499
HP Laserjet 4L	4ppm	£466
HP Laserjet 4 ML	4ppm	£745
HP Laserjet 4P	4ppm	£716
HP Laserjet 4MP	4ppm	£975
HP Laserjet 4+	12ppm	£949
HP Laserjet 4M+	12ppm	£1284
HP Laserjet 4Si	16ppm	£2175
HP Laserjet 4Si MX	16ppm	£3259
NEC SuperScript 810	6ppm	£422
NEC S 102P	6ppm	£992
OKI OL-400ex	4ppm	£379
OKI OL-410ex	4ppm	£523
OKI OL- 850 PS	8ppm	£770
Panasonic KX-P4400	4ppm	£360
Panasonic KX-P4410*	5ppm	£424
Panasonic KX-P4430*	5ppm	£527
Panasonic KX-P4440*	10ppm	£777
Panasonic KX-P5400	4ppm	£599
Star LS-5	5ppm	£365
Star LS-5 EX	5ppm	£499
Star LS-5 TT	5ppm	£530

*2 years on-site warranty

Laser RAM Upgrades

Type	1M	2M	4M	8M
Canon LBP-4+	£139	–	–	–
Canon LBP-4i	£109	–	£279	–
Canon LBP-8 IV	£119	–	£299	–
EPL-4100/4300	£70	£110	£205	–
EPL-5200/5800	£58	£115	£215	–
Fujitsu VM600/VM4	£57	£85	£149	£299
Fujitsu VM800	£115	–	–	–
HP III/IIIP/IIID	£75	£115	£135	–
HP II/IID	£75	£115	£135	–
HP IIISI	£57	£85	£158	£299
HP 4/4M/4P/4MP	£85	£85	£149	£299
HP 4L/4ML	£75	–	–	–
KX-P4410/4430	£129	£199	–	–
KX-P4420/4450i	£75	£115	£135	–
KX-P4400/5400	£89	£139	£229	–
OKI OL400e	£89	£118	–	–
Star LP-8	£138	£225	–	–
Star LS-5	£75	–	–	–

Laser Consumables

Type	Toner	Drum	Dev
Canon/Star 4s	£48	–	–
Canon LBP-8 IV	£70	–	–
Canon LBP-8 III	£52	–	–
Canon LBP-4U	£52	–	–
EPL-4100/4300	£83	£89	–
EPL-5200	£85	–	–
EPL-7500	£177	–	–
Fujitsu VM600	£85	–	–
Fujitsu VM800	£115	–	–
Fujitsu VM4	£29	£149	£89
HP III/IIID	£52	–	–
HP IIIP/IIP	£48	–	–
HP IIISi/4Si	£95	–	–
HP 4/4M/4P/4MP	£70	–	–
HP 4L/4ML	£45	–	–
NEC 610	£85	–	–
NEC S80/S62P	£89	–	–
OKI OL-400/800	£19	£189	–
OKI OL-400s	£17	£129	–
KX-P4410/30	£27	£109	£109
KX-P4420	£22	£80	£59
KX-P4450/51/55	£19	£99	£79
KX-P4400/5400	£32	£69	–
Qume Crystalprint	£99	£189	–
Star LS-5	£83	–	–

Laser Accessories

JetPage Postscript Cartridge - IIP/IIIP	£225
Postscript Upgrade for LaserJet 4	£270
LaserJet 4 Lower Paper Cassette	£205
LaserJet 4 JetDirect Ethernet Card	£339
LaserJet IIIP Lower Paper Cassette	£115
Ozone filter for KX-P4420	£9
Ozone filter for KX-P4450/4455	£20
LaserJet 4Si Duplex Unit	£475
Envelope Feeder for LaserJet 4	£199
LaserJet Font Cartridges	from £45
LaserJet III FX/IBM Emulation Cart.	£79
Lower Paper Tray for Canon LBP-4	£98
A5 Paper Feeder for LaserJet 4P	£85
Postscript Upgrade for LaserJet 4P	£225

9pin Matrix Printers

Citizen Swift 90	80col	£115
Citizen Swift 90C	80col	£122
Citizen 120D+ Parallel	80col	£90
Citizen 120D+ Serial	80col	£109
Epson LX100	80col	£109
Epson LX400	80col	£91
Epson LX850+	80col	£134
Epson LX1050	132col	£174
Epson FX870	80col	£226
Epson FX1170	132col	£284
Epson DFX5000C	132col	£1095
Panasonic KX-P1150	80col	£89
Panasonic KX-P1695	132col	£287
Star LC15	132col	£179
Star LC100C	80col	£89
Star ZA200	80col	£255
Star ZA250	132col	£315

24pin Matrix Printers

Citizen ABC Mono	80col	£115
Citizen ABC Colour	80col	£135
Citizen Swift 200 Mono	80col	£138
Citizen Swift 200 Colour	80col	£148
Citizen Swift 240 Mono	80col	£185
Citizen Swift 240 Colour	80col	£165
Citizen Swift 24X	132col	£235
Epson LQ100	80col	£119
Epson LQ150 Colour	80col	£159
Epson LQ570+	80col	£189
Epson LQ870	80col	£353
Epson LQ1070	132col	£285
Epson LQ1170+	132col	£409
Epson LQ2550	132col	£879
NEC P20	80col	£134
NEC P30	132col	£236
NEC P320	132col	£245
NEC P620	80col	£337
NEC P72	132col	£386
NEC P90	132col	£582
Panasonic KX-P2023	80col	£108
Panasonic KX-P2123	80col	£127
Panasonic KX-P2124	80col	£209
Panasonic KX-P1624	132col	£210
Panasonic KX-P2624	132col	£255
Star LC24-20 II	80col	£113
Star LC24-15 II	132col	£235
Star LC24-30C	80col	£148
Star LC24-100	80col	£95
Star LC24-300C	80col	£178
Star XB24-200C	80col	£320
Star XB24-250C	132col	£385

Ribbons/Ink Cartridges

Type	Black	Colour
Canon BJ10ex/BJ10sx	£15	–
Canon BJ200/BJ230	£16	–
Canon BJ300/BJ330	£11	–
Canon BJC600	£6	£8
Canon BJC800	£16	£22
Citizen 120D+	£4	–
Citizen Swift 200/240	£4	£13
Citizen Swift 24X	£8	£18
Epson LX400/LX850/FX870	£4	–
Epson LX100	£4	–
Epson LX1050/FX1170	£5	–
Epson LQ100	£4	–
Epson LQ150	£4	£12
Epson LQ570/870	£5	–
Epson LQ1070/1170	£8	–
Epson LQ2550	£8	£16
Epson SQ870/SQ1170	£23	–
Epson Stylus 300	£10	–
Epson Stylus 800/1000	£10	–
Fujitsu DL1150/DL1250	£5	£7
Fujitsu DL3600	£6	£12
Fujitsu B100/B200	£14	–
HP DeskJet Std Capacity	£13	£21
HP DeskJet High Capacity	£30	–
HP DeskJet 310	£13	£21
HP DeskJet 1200	£22	£26
HP PaintJet	£17	£27
HP PaintJet XL300	£17	£19
Kaga/Taxan KP810/815	£5	–
NEC P88Q/P32Q	£8	–
NEC P82/72/90	£8	£14
Panasonic 1150/1170/1180	£8	–
Panasonic 2180/2123/2124	£7	£15
Panasonic 1824/2824	£8	–
Star LC10/LC100	£5	£9
Star LC200	£5	£12
Star LC24-20/24-100/24-200	£5	£12
Star LC24-30	£8	£12
Star XB24/ZA200/ZA250	£5	£12
Star SJ48	£15	–
Star SJ144 Thermal	£18	£18

Roland Plotters

DXY1150	£575	DXY1250	£725
DXY1350	£939	DPX2800	£POA
Sketchmate A4	£335	S/Mate A3	£499

Inkjet Printers

Canon BJ10sx	80col	£141
Canon BJ200	80col	£183
Canon BJ230	132col	£243
Canon BJ300	80col	£322
Canon BJ330	132col	£372
Canon BJC600	80col	£412
Canon BJC800	132col	£1075
Canon BJC820 (Mac)	132col	£1230
Citizen ProJet II	80col	£299
Epson Stylus 300	80col	£155
Epson Stylus 800	80col	£182
Epson Stylus 1000	132col	£340
Epson SQ870	80col	£415
Epson SQ1170	132col	£580
Fujitsu B100	80col	£145
Fujitsu B200	80col	£209
HP DeskJet 520	80col	£186
HP DeskJet 500C	80col	£255
HP DeskJet 560C	80col	£375
HP DeskJet 310	80col	£166
HP DeskJet 310 & CSF	80col	£205
HP DeskJet 1200C	80col	£1080
HP DeskJet 1200C PS	80col	£1625
HP PaintJet XL300	132col	£1619
HP PaintJet XL300 PS	132col	£2575
HP DeskWriter 520 (Mac)	80col	£189
HP DeskWriter 500C (Mac)	80col	£260
HP DeskWriter 580C (Mac)	80col	£375
Star SJ48	80col	£182
Star SJ144	80col	£286

Sheet Feeders

Canon BJ10ex/BJ10sx	£43
Canon BJ300	£88
Canon BJ330	£92
Citizen Swift 24/200/240	£75
Epson LX400	£69
Epson LQ570/LQ870	£47
Epson LQ1070/LQ1170	£89
HP DeskJet 310	£48
NEC P20/P220	£59
NEC P3Q/P32Q	£85
Panasonic 1170/1180/1123	£59
Panasonic 1124/1124i/2124	£79
Panasonic 1824/2824	£128
Star LC100	£69
Star LC24-20	£69
Star LC200/LC24-200	£69

INKJET REFILL PACKS

Canon BJ10ex/BJ10sx - 2 pack	£12
Canon BJ10ex/BJ10sx - 5 pack	£24
Canon BJ10ex - Cart/3 Refills	£29
Canon BJ200 - Cart/3 Refills	£34
HP DeskJet Std Capacity - 2 pack	£8
HP DeskJet Hi-Capacity - 2 pack	£24
HP DeskJet Std Capacity - 5 pack	£14
HP DeskJet Hi-Capacity - 5 pack	£35
HP DeskJet Colour - Cart/4 Refills	£49

Accessories

Citizen Swift 200/240/ABC Colour Kit	£34
Canon BJ10sx Battery Pack	£33
Epson 0K Serial Interface	£29
Epson 8K Serial Interface	£75
Epson 32K Serial Interface	£95
Epson LQ100 Tractor Unit	£29
HP DeskJet FX Emulation Cartridge	£49
HP DeskJet IBM Emulation Cartridge	£57
HP DeskJet 256K RAM Cartridge	£45
HP DeskJet 310 Battery Pack	£33
HP DeskJet Carry Case	£49
HP DeskJet 310 Colour Kit	£28
HP DeskJet 1200 Postscript Upgrade	£499
HP DeskJet Prestige Elite Fonts	£55
HP DeskJet Letter Gothic Fonts	£56
HP DeskJet 310 Parallel Cable	£12
Panasonic Serial Interface	£49
Panasonic 32K Buffer	£16
Panasonic 2180/2123 Colour Kit	£30
Star 8K Serial Interface - LC range	£52
Star 8K Serial Interface - XB range	£39
Star 32K Buffer - LC24/XB24	£52
Dustcovers for 80col printers	£6
Dustcovers for 132col printers	£9
51636G - 50 x DJ500 Transparencies	£35
51838J - 50 x DJ500 Glossy A4 Paper	£35
51630Z - 50 x DJ500 A4 Paper	£15
Appletalk Printer Cable - 2m	£12
51636G - 50 x DJ500 Transparencies	£35
Appletalk Interface for DeskJet 1200	£129
Appletalk Interface for LaserJet III	£189

HP On-site Warranty

Mono DeskJets & Deskwriters	£40
Colour DeskJets & Deskwriters	£85
4ppm LaserJets & DeskJet 1200C	£100
8ppm LaserJets	£185

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Standard Low Cost Sharers

Connects	Serial	Parallel
2 to 1	£8	£9
3 to 1	£11	£12
4 to 1	£15	£16
5 to 1	£POA	£POA

Professional Sharers

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3 to 1	£15	£17
4 to 1	£24	£26
5 to 1	£POA	£POA

Crossover Sharers

Connects	Serial	Parallel
2 in/2 out	£28	£29
4 in/2 out	–	£49

Auto Printer Sharers

Uni-Directional

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2 to 1	£27	£29
4 to 1	£44	£45
8 to 1	£POA	£75

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Connects	Serial	Parallel
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These parallel Auto sharers have built-in 256K buffers.

- 2 in/2 out £99
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- 8 in/1 out £149

Compact Converter

Serial/Parallel Converter	£32
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Printer Leads

	2m	5m	10m
PC Parallel	£4	£8	£13
25 'O' Male/Male	£4	£8	£13
25 'O' Male/Female	£5	£9	£14
Centronics D/Ended	£8	£10	£15
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500 sheets A4 80gm pure white ideal for laser & inkjet printers
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1000 90mm x 49mm Twin Row	£4.95
1000 102mm x 36mm Twin Row	£4.70
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Miscellaneous

80 column Perspex printer stand	£12
132 column Perspex printer stand	£18
80 column Professional printer stand	£15
132 column Professional printer stand	£27
Printer trolley	£39
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Multiform Paper Feeder	£12
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Cub 1450 - 14" Multiscan for Arc	£689
Touchtec 501 for BBC	£239
Touchtec 3000 for Arc	£239

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Taxan 789LR	£289
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Cables

Monitor Cables

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- Microprocessor controls & LCD display
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- 1280 x 1024 NI @ 60Hz
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- Complete with connecting lead (15pin)

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- 1280 x 1024 NI @ 60Hz
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- Microprocessor controls & LCD display
- Precise colour adjustment
- Complete with connecting lead (15pin)

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Wapping Fonts #1 (40T Disc)	£7
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Accessories

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1Mb Solid State RAM Disc	£199
128Mb Solid State Flash Disc	£30
256K Solid State Flash Disc	£48
512K Solid State Flash Disc	£79
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● Education special ● Impression Style ● Solids modeller ● Artist package on disc ● 1993 review ● Easy C ● Guide to the National Curriculum



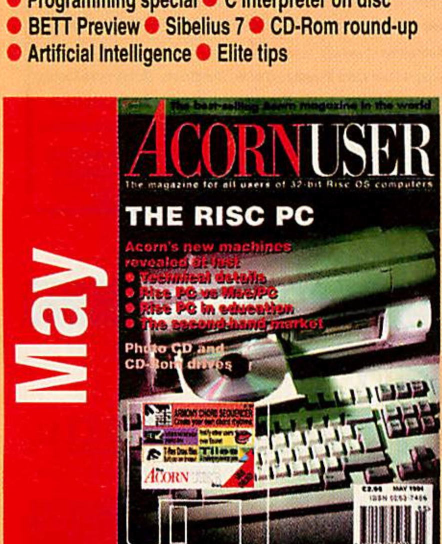
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Special SUBSCRIPTION OFFER

Here's some more information on... *Cyber Chess*

Cyber Chess is one of the highest specification chess-playing programs available for any computer. Some of the main points of this superb game are:

Superb 3D simulation

Cyber Chess is a near complete 3D simulation of the real game. Animation is used to move the pieces smoothly around the board; It is designed for total clarity. The board is carefully arranged so it can be played from without difficulty and a large 2D view is also provided as an option, with high-quality digitised stereo sound and speech.



Risc OS compliant

Cyber Chess runs from the desktop in a window; it is fully multitasking, intuitive and follows the 3D style associated with high quality software.

It is multi-windowed and any number of games can be run from one incarnation of the program.

A sophisticated internal scheduling algorithm allows *Cyber Chess* to drive all computer opponents/games simultaneously while still multi-tasking smoothly with other desktop applications.

High spec machines

Cyber Chess is optimised for an Arm2, mode 12 system, but takes full advantage of a faster processor or even extra Ram to produce a higher 'full strength' playing standard and smoother animation. It is thoroughly tested with Risc OS 3; supports saving of the desktop.

Rules

All of the applicable chess laws are implemented, including en passant captures, underpromotions, 50/75 move rule etc, even resignation and draw by agreement are supported.

Support for beginners/children

You can learn chess from scratch using the*Cyber Chess* tutorial supplied. There are 100 beginner levels provided, ranging from 1(very weak) to 99 (reasonably competent). When you beat level 99 you can graduate to 'full strength' mode. The teaching option shows you which moves are legal as you play and if a player gets stuck a hint can be requested. The names of the openings can be announced as they are played quickly, familiarising chess learners with the various opening systems.

Support for stronger players

Cyber Chess has a state-of-the-art chess algorithm and can perform analysis, giving the best line of play from the current position and an estimate of who is winning or losing and by how much.

There are full tournament time controls which can be set up. Time controls can be set for human players as well as computer opponents to simulate real tournament conditions.

The state-of-the-art opening book supports opening traps and advice. Multiple books are provided and new ones can be added or existing ones edited.Even the style of computer play (defensive, attacking, etc) can be adjusted to taste or to prepare for a match against a similar human opponent.

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THE MOXON INTERVIEW

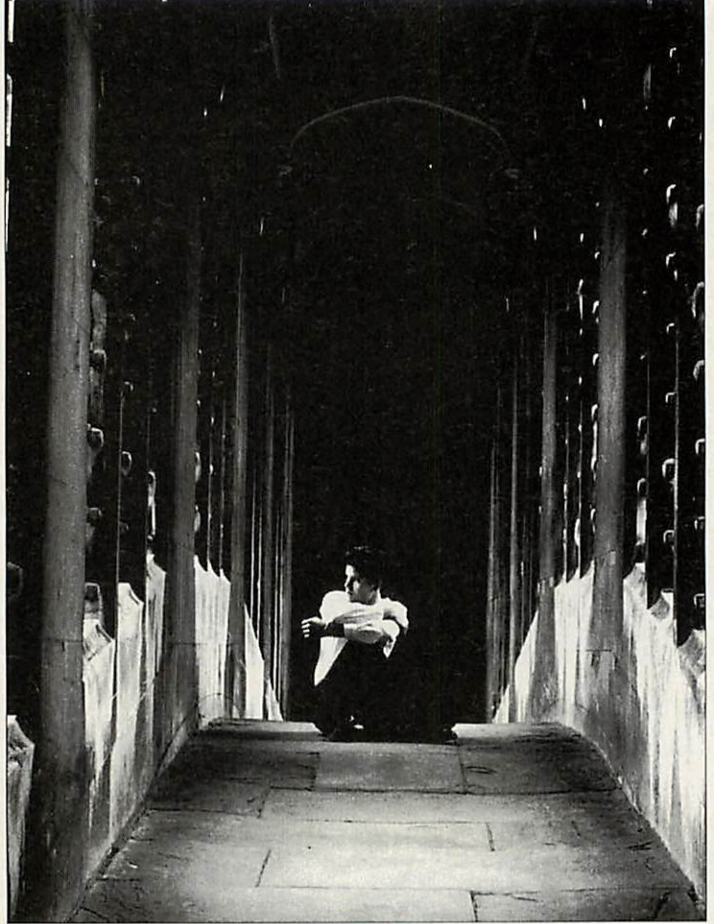
ADRIAN CRITCHLOW

Japanese research into ergonomics has shown that the correct seating, a well-designed keyboard and anti-glare monitor screens all help to reduce stress in programmers. As far as I'm concerned, all these pale into insignificance compared to the geographical positioning of the office you work in.

Iota House is situated in Cambridge, just like a lot of other Acorn companies. But it's not on the outskirts, tucked away in the Science Park or the suburbs, it's right in the thick of it, next to some of the most beautiful parkland in the city.

And some of the most beautiful local pubs. That might explain why the working atmosphere at Iota is so congenial, and why Adrian Critchlow, the mastermind behind Iota Software, is so confident in his company and its products.

'I remember when I founded Iota, I told all the other third parties I wanted it to be the number one Acorn software house,' claims Adrian. 'Now we are the number one supplier of databases for Acorn Risc machines. Not bad, eh.'



' We are the number one supplier of databases for Acorn Risc machines '

He's talking about *DataPower*, one of the best examples of intuitive and powerful software for Risc OS. You might be forgiven for thinking, when talking to anyone from Iota, that *DataPower* is the be all and end all of the company, but Adrian claims that there is much more to the company than its flagship product.

'All our products slot in with *DataPower*,' explains Adrian. 'It's effectively a multimedia database: you can put pictures in the database, which is where our scanner comes in; you can include animations with our animation package; you can create *Draw* files for your database with *Outliner*.

'It's like Computer Concepts: *Impression* is its flagship product, but the other products slot around it to provide a more complete solution.'

But if everything is based around one product, isn't there a chance of stagnation? Or is the recent release of the Risc PC about to breathe life into the market, and create new frontiers for Iota?

'One of the real potentials for the Risc PC is in mixed platform offices,' explains Adrian. 'While Acorn has an excellent product and people using Acorns achieve more than PC users, the huge momentum of Windows makes it hard for Acorns to attack the mainstream market.

'However, the Risc PC will open up Acorn to the graphics manipulation market, and I can see offices buying Macs, PCs and Risc PCs for different tasks, with them all linked together on a network.

'This means the future needs to have interchangeable file formats, and that's one major area we have been working on: the ability for our products to read and write to popular non-Acorn formats.'

But is the Risc PC really going to break into the mainstream as a serious choice along with Macs and PCs?

'I have yet to see a PC user who isn't thoroughly impressed with the speed and ease of use of an Acorn machine,' says Adrian. 'As long as we have network technology and interchangeable file formats – and we have both on the Acorn platform – we have all the key components for a multi-platform environment, and I believe that's the way of the future.'

But what of the future? What will Iota be doing in five years' time: still selling *DataPower* to businesses?

'It's impossible to predict what will happen,' Adrian says, hedging his bets. 'But one thing is for sure: hardware is reaching physical limits, and software design is becoming the most important area of computer development.

'Sofware will become more intelligent: most software these days is passive, for want of a better word, and without a doubt the software market is a very interesting place to be in at the moment.'

And as for *DataPower*, there's plenty more to do on that front.

'The hard work in creating a very reliable database has been done,' says Adrian. 'Now the nice thing about having *DataPower* in use by a large number of companies is the amount of feedback we are getting.

'They ring us up and say "I love *DataPower*, but wouldn't it be great if it did this", so there are plenty of areas in which we can take our database system further. Our emphasis is to use the expertise of our programmers to enable users to access the power of the machine.'

That shouldn't be a problem. Iota has proved that if there is a gap in the market, a good programming team, and a willingness to spend a large amount of time testing software and listening to users, then the conditions are ripe for producing a market-leading product.

I wonder if it would have worked out so well if the office had been in the middle of nowhere.

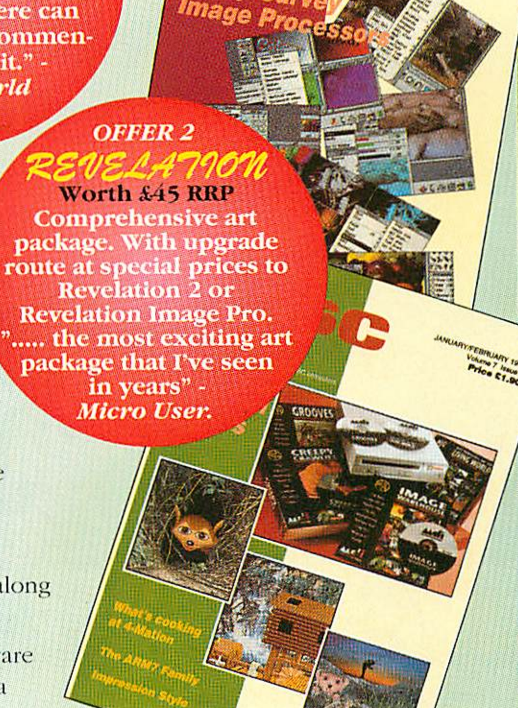
Mark Moxon

RISC user

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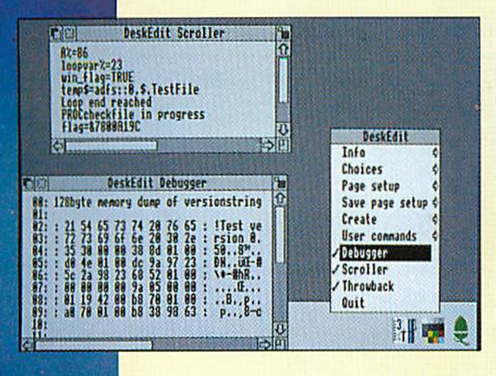
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One of the most powerful and widely-used program editors for the Acorn platform - now fully tested on the Risc PC

DeskEdit 3



Whether you are programming in Basic or in C, DeskEdit 3 provides a massive range of features to assist both beginner and advanced users alike.

150 special key combinations

DeskEdit has more than 150 special key combinations supported by a high quality function key-strip for ease of use.

Edit and Run direct from the Desktop

Just open a window and type in your program with line numbers or without, and with (optional) automatic indenting of structures. Press Ctrl-Shift-F3 and it will be saved and run from within the Desktop.

Special saves

A special backup system lets you backup to a named path at any time, and a brand new safety save feature retains the last copy of any file. An Undo feature lets you Undo and Redo your editing and together with all markers and many other features is optionally saved to disc when you save a program.

The Toolbox

A powerful toolbox provides the following features:

- Programmer's calculator
- Basic renumber
- Basic abbreviations
- Customisable keyword help
- Procedure lister
- Procedure browser (lists all procs in a window)
- Finds browser (lists all finds in a window)

A wealth of procedure & function finders

The Browser can list all function and procedure names. Click on any Browser entry to go straight to the corresponding procedure definition - or click with Adjust, and a new view window will be opened on the definition.

Multiple Search options

DeskEdit provides all the search and replace options of Edit plus some very special ones: DeskEdit's <I>QuickSearch<P>, for example, can take its target from any marked text. And a single keypress will take you back to where you started.

Move around with ease

Finding your place in a program is even easier with DeskEdit 3. There are dozens of special markers and position finder features which make scrolling through your program to find a particular line, a thing of the past.

And there's more

Plus a special input filter for automatically converting PC files etc., built-in Desktop debugger, extended file info window, special delete and tab options, programmer's calculator which can import and export data, flexible clipboard, fully customisable user commands, powerful macros, throwback etc.

Much more

And there is much much more. So much in fact that in Archimedes World's review of DeskEdit, it awarded a maximum score of 5 out of 5 in all four of its categories:

Performance	*****
Features	*****
Value for money	*****
Overall	*****

And as you may have heard - DeskEdit is so good that it is used within Acorn itself.

A single editor for a thousand different tasks

Moreover, DeskEdit is just as at-home with text (handy for editing Obey files, writing letters, or complete books), and with the C language, where it provides most of the features offered to Basic users (where applicable) with some others added - including a unique and powerful syntax checker.

DeskEdit comes with a fully illustrated 70 page manual (with comprehensive index), a function keystrip and a smart quick reference card - together with a Desktop Dustbin.

DeskEdit 3 costs £22.94 ex. VAT plus £2 p&p. Upgrade from DeskEdit 2 £5.00 ex. VAT plus £1 p&p.

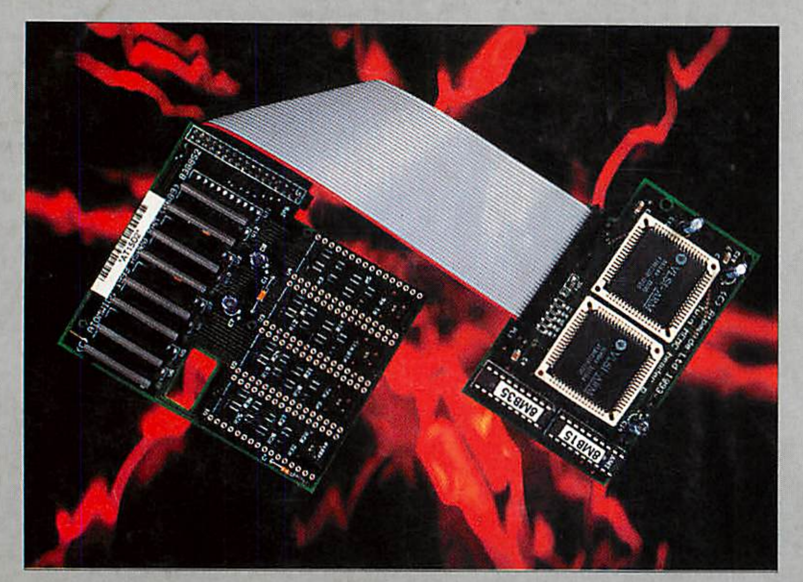
Debugger now compatible with Acorn ANSI C and RISC Developments' Easy C



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From as little as £249 (£292.58inc)

A5000 - 8Mb memory upgrade



With the release of the 33MHz A5000, which has its memory controller fitted in a socket, it is now possible for an end user to upgrade their computer to 8Mb of memory.

Installation takes only 30 minutes and requires no soldering or special technical knowledge. An installation service is offered for users with old style 25MHz A5000s which require a MEMC socket to be fitted to the motherboard.

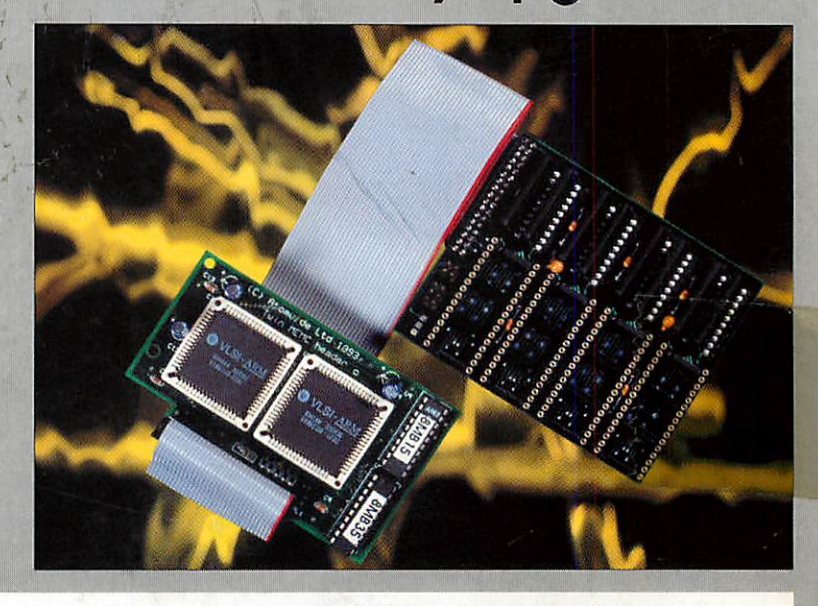
The A5000 memory upgrade has been designed to be compatible with any third-party, 4-layer memory card. So there is no need to discard your existing upgrade.

A310 / A440 / A440/1 - 8Mb memory upgrade

The A310, A440 and A440/1 memory upgrades are all designed to enable fitting by the end user. All upgrades are simple plug-in devices and require little or no soldering or special technical knowledge.

Each upgrade consists of a dual-MEMC header card and a RAM card. The RAM card includes full-size ROM sockets enabling RISC OS3 ROMs to be fitted without the need for a special ROM header card.

For those with RISC OS 2 in their machines, a special combination deal exists which consists of the 8Mb memory upgrade, plus a full RISC OS 3 kit from Acorn.



Thousands of users around the world have experienced the advantages of 8Mb of memory. These upgrades have been sold as far and wide as Hong Kong and Australia as well as into Europe. They have a proven track record of reliability. Each upgrade is fitted with a pair of matched MEMC1a devices that have been tested as a pair to ensure perfect operation. Gold plated connectors are used throughout the product range along with 4 layer PCBs. The interconnecting cable interleaves the electrical signals and a ground signal to ensure correct performance. Machined turn pin sockets are used to fit the operating system ROMs to the OS motherboard sockets and still leave all expansion slots available.

Pricing and installation

Atomwide offers a fitting service to both callers (by appointment) £30.00 (£35.25inc) and by courier service £50 (£58.75inc). A5000 8Mb upgrade's are priced at £259.00 (£304.33inc) all other machines are £249.00 (£292.58inc).



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